

RUSH UNIVERSITY



BULLETIN 1993-1994
RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER

Academic Calendar 1993-94

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 9-10	September 9-10	
Fall Quarter Classes Begin	September 13	September 13	September 7
Classes End	November 19		
Examination Period	November 22-24		
Thanksgiving Holiday		November 25-26	November 25-26
Classes End		December 10	December 10
Examination Period		December 13-17	December 13-17
Winter Quarter Classes Begin	January 3	January 3	January 3
Classes End	March 11	March 11	March 11
Examination Period	March 14-18	March 14-18	March 14-18
Spring Quarter Classes Begin	March 28	March 28	March 28
Memorial Day	May 30	May 30	May 30
Classes End	June 3	June 17	May 6
Examination Period	June 6-10	June 20-24	May 9-16
Commencement	June 11		
Summer Quarter Classes Begin	June 20		
Independence Day Holiday	July 4		
Classes End	August 26		
Examination Period	August 29-30		

Clinical Quarters in Medicine begin September 27, 1993, January 3, March 28, July 5 1994.

Academic Calendar 1994-95

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 8-9	September 8-9	
Fall Quarter Classes Begin	September 12	September 12	September 7
Classes End	November 18		
Examination Period	November 21-23		
Thanksgiving Holiday		November 24-25	November 24-25
Classes End		December 9	December 9
Examination Period		December 12-16	December 12-16
Winter Quarter Classes Begin	January 3	January 3	January 3
Classes End	March 10	March 10	March 10
Examination Period	March 13-17	March 13-17	March 13-17
Spring Quarter Classes Begin	March 27	March 27	March 27
Memorial Day Observed	May 29	May 29	May 29
Classes End	June 2	June 16	May 5
Examination Period	June 5-9	June 19-23	May 8-15
Commencement	June 10		
Summer Quarter Classes Begin	June 19		
Independence Day Holiday	July 4		
Classes End	August 25		
Examination Period	August 28-29		

Clinical Quarters in Medicine begin September 26, 1992, January 3, March 27, July 3, 1995.

X courses are offered by nursing and health sciences faculties

Y courses are offered by first-year medicine and graduate college faculties

Z courses are offered by the second-year medicine faculty

RUSH UNIVERSITY BULLETIN

1993-94

Rush-Presbyterian-St. Luke's Medical Center

This Bulletin is published as a guide for the faculty and students of Rush University. The University reserves the right to add, amend, delete or deviate from any specifications herein at any time and to apply such changes to registered and accepted students.

Rush University
1653 W. Congress Parkway
Chicago, Illinois 60612

Rush University

Degrees in the Health Professions

1993-94

Rush Medical College	Doctor of Medicine	
College of Nursing	Bachelor of Science	
	Master of Science	Clinical Specialist and Practitioner Programs offered in these Departments
	Doctor of Nursing	Community Health Gerontology
	Doctor of Nursing Science	Maternal/Child Health Medical
		Psychiatry/Mental Health Surgical
College of Health Sciences	Bachelor of Science	Medical Technology Perfusion Technology
	Master of Science	Audiology Clinical Nutrition Health Systems Management Medical Physics Occupational Therapy Speech-Language Pathology
The Graduate College	Master of Science	Anatomical Sciences Pharmacology Radiological Science
	Doctor of Philosophy	Anatomical Sciences Biochemistry Immunology Medical Physics Neuroscience Pharmacology Physiology Psychology

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Management

Medical Center

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Vice President, Academic Resources and Dean, The Graduate College and Dean, College of Health Sciences

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Director, Academic Skills Center

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Vacant
Director, Biomedical Communications

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Acting Dean, Rush Medical College

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Associate Dean, Educational Development

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Assistant Dean, Academic Counseling

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*Assistant Vice President, Medical Affairs and
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College of Health Sciences

John E. Trufant, Ed.D.
Dean, College of Health Sciences

The Graduate College

John E. Trufant, Ed.D.
Dean, The Graduate College

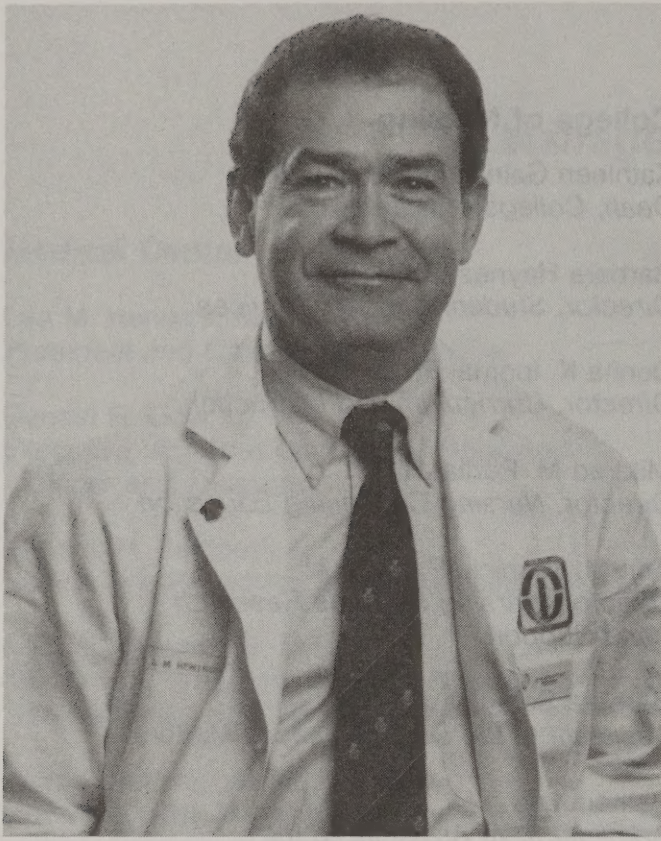
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Leo M. Henikoff, M.D.
President and Chief Executive Officer
Rush-Presbyterian-St. Luke's Medical Center

"Rush-Presbyterian-St.-Luke's is a major academic medical center on the national scene in a leadership position in many of its attributes and delivering the kind of care that is really second to none. It is within this environment of excellence and balanced emphasis on patient care, education, and scientific inquiry that future health professionals have the opportunity to grow in knowledge, understanding and skill."

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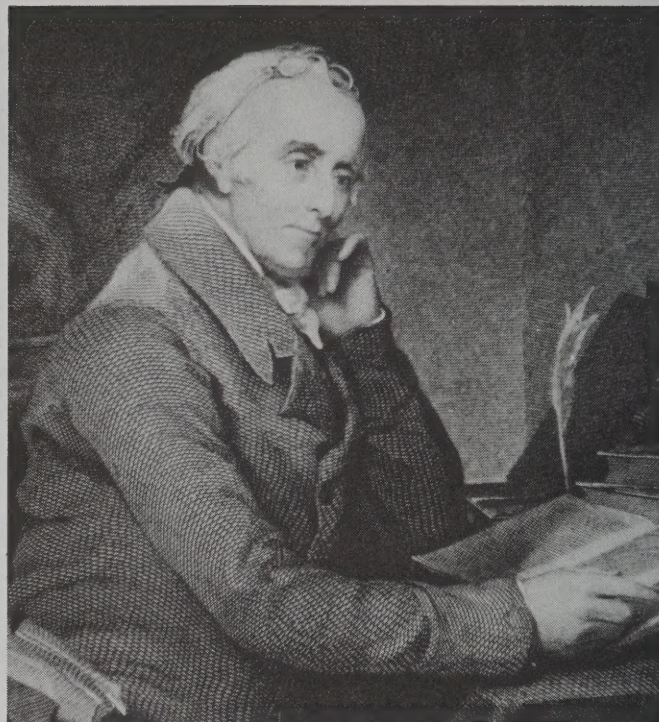
Medical Center Mission

The primary mission of Rush-Presbyterian-St. Luke's Medical Center (RPSLMC) is to improve the health of a defined population through the development and operation of a voluntary health care system. This system is a multi-faceted corporation that provides a full range of health care services, alternative financing arrangements, and organizational elements that are integrated through a single governance structure and through contractual relationships with other health care and educational institutions. High quality, compassionate, comprehensive health care services will be provided to a representative regional population and selected specialty services to a national population. New knowledge will be fostered and disseminated, and a broad spectrum of health professionals will be educated and trained through the system's academic component, Rush University. The full integration of the academic function with the health care function will reinforce the positive aspects of both. The faculty and staff of Rush-Presbyterian-St. Luke's Medical Center will strive to achieve national and international leadership in setting standards of excellence in patient care, education, research and management. Rush-Presbyterian-St. Luke's Medical Center will maintain financial strength, efficiently manage resources, and adapt to the changing environment.

The Medical Center

Rush-Presbyterian-St. Luke's Medical Center is one of Chicago's oldest health care organizations. Its heritage extends back to 1837 when Rush Medical College was established. St. Luke's Hospital, founded in 1864, and Presbyterian Hospital, founded in 1883, merged in 1956 forming Presbyterian-St. Luke's Hospital. The merger of these pioneer institutions in 1969 created the present day Rush-Presbyterian-St. Luke's Medical Center, which today includes:

- Rush University, a health professions higher education institution that enrolled 1,301 students in 1992-93.
- Presbyterian-St. Luke's Hospital, with 912 beds, a major referral center that provides primary care to its immediate community and secondary and tertiary care to patients from across the country. The hospital admitted more than 26,554 patients and performed over 20,000 operations the last fiscal year.



Rush University is named for Dr. Benjamin Rush, signer of the Declaration of Independence and the "Father of Modern Psychiatry."

- The Johnston R. Bowman Health Center for the Elderly, a short-term rehabilitation facility with 176 beds and a national model for hospital-based geriatric care. The center admitted 2,362 patients last year.
- Managed Care programs, including RUSH Anchor health maintenance organization with 117,000 enrollees; RUSH Access Health, an independent practice association with a membership of over 44,000; RUSH Contract Care, a preferred provider organization that covered nearly 108,000 employees and dependents last year; and RUSH Occupational Health, which served about 3,000 employers.
- ArcVentures, Inc., a wholly owned for-profit subsidiary of the Medical Center, has over 250 employees with offices in Chicago, Springfield, St. Louis, Miami, New Jersey and the New York and Los Angeles areas. ArcVentures develops and markets health care products and services, including: (1) home infusion therapy services; (2) medical board preparation classes; (3) hospital billing and collection services; (4) retail and mail-order pharmacy services; and (5) home care services to women with high-risk pregnancies.

- Corporately affiliated with the Medical Center are Rush North Shore Medical Center in Skokie, Illinois, and Copley Memorial Hospital in Aurora, Illinois. Rush North Shore has 284 beds and Copley, 323 beds. Holy Family Hospital in Des Plaines, with 277 beds, is affiliated through a joint venture.

The Medical Center is the hub of a network of 12 hospitals and health care agencies in the Chicago area and in Indiana, and of an educational network of 18 colleges and universities in seven states. Through its own programs and in conjunction with its affiliated institutions, the Medical Center is the central initiating component of a comprehensive cooperative health organization designed to provide care for some 1.5 million people in northern Illinois.

Affiliations

Clinical Network

Bethany Hospital, Chicago, Illinois; 212 beds
 Central DuPage Hospital, Winfield, Illinois; 371 beds
 Elmhurst Hospital, Elmhurst, Illinois; 392 beds
 Galesburg Cottage Hospital, Galesburg, Illinois; 265 beds
 Grant Hospital of Chicago, Chicago, Illinois; 508 beds
 LaGrange Memorial Hospital, LaGrange, Illinois; 276 beds
 LaPorte Hospital, LaPorte, Indiana; 227 beds
 Marianjoy Rehabilitation Center, Wheaton, Illinois;
 100 beds
 St. Mary's Hospital, Streator, Illinois; 248 beds
 Swedish Covenant Hospital, Chicago, Illinois; 355 beds
 West Suburban Hospital Medical Center,
 Oak Park, Illinois; 374 beds

Rush University Affiliated Colleges

Beloit College, Beloit, Wisconsin
 Carleton College, Northfield, Minnesota
 Colorado College, Colorado Springs, Colorado
 Cornell College, Mount Vernon, Iowa
 DePauw University, Greencastle, Indiana
 Fisk University, Nashville, Tennessee
 Grinnell College, Grinnell, Iowa
 Illinois Benedictine College, Lisle, Illinois
 Illinois Institute of Technology, Chicago, Illinois
 Knox College, Galesburg, Illinois
 Lake Forest College, Lake Forest, Illinois
 Lawrence University, Appleton, Wisconsin
 Macalester College, St. Paul, Minnesota
 Monmouth College, Monmouth, Illinois
 North Central College, Naperville, Illinois
 Ripon College, Ripon, Wisconsin
 Rosary College, River Forest, Illinois
 Wheaton College, Wheaton, Illinois

Rush University Mission

The purpose of Rush University is to educate students as practitioners, scientists, and teachers who will become leaders in advancing health care and to further the advancement of knowledge through research. As a major component of Rush-Presbyterian-St. Luke's Medical Center, the University integrates patient care, education, and research through the practitioner-teacher model. Rush University encourages growth of its students by committing itself to the pursuit of excellence, to free inquiry, and to the highest intellectual and ethical standards.

The University

Rush University is the academic component of Rush-Presbyterian-St. Luke's Medical Center. Founded in 1972, the University has expanded from one college and fewer than 100 students to four colleges and over 1,200 students. It includes Rush Medical College, the College of Nursing, the College of Health Sciences, and The Graduate College.

Rush Medical College, chartered in 1837, opened officially on December 4, 1843, with 22 students enrolled in a 16-week course. During the first century of operation more than 10,000 physicians received their training at Rush Medical College. Rush Medical College was affiliated with The University of Chicago from 1898 until 1942, when the medical college temporarily suspended its educational program, though it continued its corporate existence. Its faculty continued undergraduate and graduate teaching of medicine and the biological sciences as members of the faculty of the University of Illinois. The charter of the medical college was reactivated in 1969 when it became part of the Medical Center, and, in 1971, it reopened with a class of 66 first-year students and 33 third-year students. First-year class size reached its projected maximum of 120 in 1976.

The College of Nursing represents a combined heritage dating back to the late nineteenth century when its first antecedent, the St. Luke's Hospital Training School of Nursing, opened in 1885 to offer diploma education to nurses. In 1903, the Presbyterian Hospital School of Nursing accepted its first students. From 1956 to 1968 nurses were taught at the merged Presbyterian-St. Luke's Hospital School of Nursing. Before the establishment of the College of Nursing in 1972, more than 7,000 nurses had graduated from these three schools. Today, approximately 200 baccalaureate, master's and doctoral nursing students graduate each year.

The College of Health Sciences, established in 1975, traces its origins to the School of

Medical Technology sponsored by Presbyterian-St. Luke's Hospital from 1959 to 1972. This school was the second largest of its kind in the city of Chicago. During its operation, it provided a one-year professional internship program to more than 200 baccalaureate students in medical technology. Today, the College of Health Sciences offers six programs at the master's level in addition to bachelor's programs in medical technology and perfusion technology.

The Graduate College was established as a separate academic unit in January, 1981, having previously been organized as the Graduate School within the College of Health Sciences. The Graduate College is responsible for educational programs in the basic sciences and offers the master's degree in three disciplines and the doctoral degree in seven.

The Philosophy

The University was established in response to demands for a more effective and humane health care system that could supersede highly specialized, fragmented and often geographically inaccessible patient care services. The Rush System for Health, the conceptual framework adopted to address these problems, offers a prototype that could become a model for the delivery of health care in this country. This system is unique in many ways. The central concept is that the academic and care elements of health delivery systems must be united. The implementation of this concept differentiates Rush from many typical health universities. At the foundation of the University is an outstanding patient care setting. Presbyterian-St. Luke's Hospital is recognized as one of the top 20 hospitals in the country; its existence as a high quality patient care institution made the development of the University feasible. Most faculty and students have clinical responsibilities in this setting or in one of the institutions linked to Rush-Presbyterian-St. Luke's Medical Center. Therefore, faculty members function both as clinicians and as teachers. This combination ensures that faculty members bring up-to-date knowledge to the clinical setting and professional expertise to the classroom. Another distinctive feature of Rush University is its commitment to health maintenance and illness prevention. Traditional approaches to health care delivery are based on giving care to the seriously ill. Today, only about 12 percent of the population requires such care. At Rush one major focus in the classroom is on pathology and prevention of disease. This is supplemented by clinical experiences with inpatients and outpatients

Programs of Study

Rush University confers the bachelor of science (B.S.), master of science (M.S.), doctor of nursing (N.D.), doctor of nursing science (D.N.Sc.), doctor of medicine (M.D.) and doctor of philosophy (Ph.D.) degrees. Within the undergraduate nursing program, an R.N. completion option meets the needs of registered nurses for a university education. All baccalaureate programs (nursing, medical technology and perfusion technology) begin in the junior year of study after completion of two years of course work at other accredited colleges or universities.

Master of science programs are offered by the College of Nursing and the College of Health Sciences. The College of Nursing has many specialties within the departments of community health, gerontology, medical, maternal child health, psychiatry/mental health, and surgical nursing. In the College of Health Sciences, a student may major in audiology, clinical nutrition, health systems management, occupational therapy, medical physics and speech-language pathology.

Doctoral programs include the doctor of nursing, doctor of nursing science, doctor of medicine and the doctor of philosophy. Students in The Graduate College may concentrate in anatomical sciences, biochemistry, immunology, medical physics, neuroscience, pharmacology, or physiology. A number of students enroll in concurrent M.D./Ph.D. programs.

Student Characteristics. In 1992 students ranged in age from 19 to 63, with undergraduates averaging 28 years; graduates, 31 years; and medical students, 26 years. Over 80 percent of the students lived in Illinois prior to entering Rush. The 1,301 students include 23 Hispanics, 132 Asian/Pacific Islanders, 68 black non-Hispanic and 44 international students.

Fall 1992 Enrollment	Men	Women	Total
Rush Medical College	236	259	495
College of Nursing	41	439	480
College of Health Sciences	40	152	192
The Graduate College	35	31	66
Unclassified	18	50	68
Total	370	931	1301

Equal Opportunity Policy

Rush University encourages and gives full consideration to all applicants for admission and financial aid regardless of race, sex, religion, color, national origin, age or handicap. The University is committed to attracting candidates who will help to make the population of health care professionals more representative of the national population. The equal opportunity coordinator for academic affairs has been designated as the University's coordinator for the implementation of these policies. The equal opportunity coordinator may be contacted by telephone at (312) 942-7093 or by mail (room 764-A, Academic Facility).

Policy on Harassment

The Management Committee of Rush-Presbyterian-St. Luke's Medical Center has adopted policies and procedures on harassment for the University and nonacademic sectors of the institution. These policies and procedures are intended to emphasize the Medical Center's longstanding commitment to preventing harassment and focus on the internal resolution of any complaints. Under these policies and procedures, the more familiar category of sexual harassment as well as harassment related to race, color, religion, national origin, ancestry, age, marital status, physical or mental handicap and unfavorable discharge from military service is prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint. They also incorporate protections for a person who considers himself or herself falsely accused. Inquiries or complaints of harassment from students, residents, or faculty members will be handled in a strictly confidential manner through the offices of the equal opportunity coordinator for academic affairs or the director of the student counseling center. Every effort will be made to resolve a complaint informally, but procedures have been established for a formal hearing if that is necessary or preferred. Copies of the Policies and Procedures

on Harassment are available from the Office of the Equal Opportunity Coordinator for Academic Affairs (room 764-A, Academic Facility). If you have any questions regarding the matter of harassment, please get in touch with either the equal opportunity coordinator for academic affairs at (312) 942-7093 or the director of the student counseling center at (312) 942-3687.

University Statement on Student Conduct

Rush University seeks to create a climate that encourages its members to act as responsible adults in an academic community. Generally, institutional disciplinary measures are invoked only in response to conduct that adversely affects the University/Medical Center's pursuit of its educational objectives and mission. Penalties may range from a warning to probation, suspension, or expulsion from the University/Medical Center. A partial list of disruptive behaviors that would subject a student to disciplinary action includes the following:

1. All forms of academic dishonesty.
2. Obstruction or disruption of teaching, research, administration, or other University/Medical Center activities.
3. Theft of or damage to University/Medical Center property or the property of a member of the University/Medical Center community.
4. Physical abuse of any person or action that threatens or endangers the safety of others.
5. Misrepresentation, falsification, alteration, or misuse of University/Medical Center documents, records or identification.
6. Unauthorized use or entry of University/Medical Center facilities.
7. Conduct that is inconsistent with the ethical code of the profession the student is preparing to enter.
8. Unlawful use or possession of controlled substances.
9. Unlawful use or possession of firearms or other weapons.

University Statement on Academic Honesty

As students and faculty of Rush University, we all belong to an academic community with high scholarly standards. Academic honesty is essential for maintaining the relationship of trust that is fundamental to the educational process. Academic dishonesty is a violation of one of the most basic ethical principles of an academic community and will result in sanctions imposed under the University's disciplinary system. A partial list of academically dishonest behaviors that would subject a student to disciplinary action include the following:

CHEATING: Using unauthorized material or unauthorized help from another person in any work submitted for academic credit.

FABRICATION: Inventing information or citations in an academic or clinical exercise.

FACILITATING ACADEMIC DISHONESTY: Providing unauthorized material or information to another person.

PLAGIARISM: Submitting the work of another person or persons as one's own without acknowledging the correct source.

UNAUTHORIZED EXAMINATION BEHAVIOR: Conversing with another person, passing or receiving material to or from another person, or temporarily leaving an examination site to visit an unauthorized site.

Drug Free Campus and Workplace

Rush-Presbyterian-St. Luke's Medical Center is committed to achieving and maintaining a drug-free campus and workplace. The Medical Center has established a drug-free policy consistent with its commitment and goals. The policy states in part:

1. The illegal manufacture, distribution, dispensing, use, sale and/or possession of controlled substances on Medical Center property or while performing Medical Center business is strictly prohibited. An employee or student engaged in any such conduct will be subject to discipline up to and including expulsion or termination. In addition, students and employees are subject to all

applicable criminal penalties under local, state or Federal law for unlawful possession or distribution of illicit drugs and alcohol.

2. Within five days of the conviction, employees and students must report to the Medical Center any conviction for violation of a criminal drug statute occurring within the Medical Center.
3. The health risks associated with the use of illicit drugs and the abuse of alcohol are many and varied. Some drugs may cause psychological and physical dependence or addiction. Others attack the central nervous system, making the user dangerous to himself and others. In the extreme, they can result in convulsions, psychosis, coma and possible death.

An Employee Assistance Program is available for any employee experiencing problems from, among other things, drug or alcohol abuse or dependency. Use of the program can be made by contacting the Department of Social Services at extension 2-5358. Students may seek similar assistance through the Student Counseling Center by calling extension 2-1439.
4. This policy is a condition of employment which all employees accept by continuing to work here. It is also a condition of enrollment which all students accept by continuing to study here.

Research

Research expenditures totaled more than \$30 million last year. The faculty of the University encourages investigation of both normal and disease processes and the distribution and delivery of health care services. The faculty believes that inquiry into these areas by students should be encouraged if they are to become practicing professionals who will continue to learn throughout their careers. All research studies conducted at Rush-Presbyterian-St. Luke's Medical Center are listed in a research report published biannually by the Office of Research Administration.

Accreditation

- Rush University is fully accredited by the North Central Association of Colleges and Schools, the regional accrediting association.
- Rush Medical College is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.
- Graduate medical education is accredited by the Accreditation Council of Graduate Medical Education.
- The College of Nursing is accredited by the National League for Nursing.
- The anesthesia nursing program is accredited by the Council on Accreditation of Educational Programs for Nurse Anesthesia.
- The clinical pastoral education (CPE) program is accredited by the Association for Clinical Pastoral Education.
- The dietetic internship is accredited by the American Dietetic Association.
- The health systems management program is accredited by the Accrediting Commission of Education for Health Services Administration.
- The medical technology program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences for the American Medical Association's Committee on Allied Health Education and Accreditation.
- The occupational therapy program is accredited by the American Occupational Therapy Association for the American Medical Association's Committee on Allied Health Education and Accreditation.

Authorization

- The State of Illinois Board of Higher Education has authorized all degree programs offered through Rush University.

Licenses

- Department of Public Health, State of Illinois
- Cook County Board of Health

Memberships

- North Central Association of Colleges and Schools
- Association of American Medical Colleges
- American Association of Colleges of Nursing
- Federation of Independent Illinois Colleges and Universities
- American Society of Allied Health Professions
- Association Of University Programs in Health Administration
- National League for Nursing
- Association for Health Services Research
- American Hospital Association
- Illinois Hospital Association
- Voluntary Hospitals of America
- Metropolitan Chicago Health Care Council
- Blue Cross/Blue Shield Health Care Service Corporation



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Academic Computing Resources

The Academic Computing Resources (ACR) department provides educational computer resources to Rush University faculty, staff, and students. These resources include the Personal Computer (PC) and Computer-Assisted Instruction (CAI) Laboratories, computerized test grading and survey scanning, and support for new computer-assisted instruction projects.

In the PC Laboratory patrons may use microcomputer software with ACR's IBM PC compatibles and Macintosh computers, laser printers, and dot matrix printers. Patrons have access to the PC Lab seven days a week on a sign-up basis. Available software packages include: word processing, spreadsheet, database, statistical analysis, and graphics packages, software application tutorials, and the AMA-FREIDA database. An ACR staff member is available during lab hours to provide assistance. Computer diskettes, paper, and transparencies are provided at a reasonable cost. Instructors may reserve the PC lab as a classroom by contacting the ACR office.

The CAI laboratory contains IBM PC compatibles and Macintosh computers and provides access to over 850 computer-assisted instruction programs. These programs are accessed by using the PLATO network, videodisc instruction, and other CAI media. Also available is a review program for the National Boards Medical Exams. The CAI Lab is accessible 24 hours a day, seven days a week, on a first-come first-served basis. It may also be reserved for classroom use by instructors by contacting the ACR office.

Computerized test grading and course evaluation services are available to instructors. Printouts contain test and evaluation results and statistical analysis to determine question validity. In addition, ACR staff can help instructors develop custom-made survey forms to fit their needs.

ACR office staff provide designing, programming, and evaluating assistance to instructors developing computer-assisted instruction for student use. Staff also assist faculty in the location and delivery of applicable off-the-shelf instructional software.

The Academic Computing Resources office is located in Academic Facility room 433. Staff can be reached at 312-942-6556.

Academic Skills Center

The Academic Skills Center offers individual and group counseling and workshops to students who wish to improve their study and learning skills. The staff helps students assess and work

on their time management, reading, notetaking, test taking, writing and related skills. Student term papers, theses and dissertations are reviewed and critiqued on request. The center also offers assistance to students for whom English is a second language. Study behavior, learning style, reading and test anxiety assessments are administered.

The center works closely with the other academic resources of the University and serves as a contact point for referrals to these resources. Assistance is offered in finding appropriate content tutors.

Student contact with the center is confidential and no information will be released to another person or to any office without the prior consent of the student.

Individual consultation is available Monday through Friday between 9:00 a.m. and 3:00 p.m. on a walk-in basis. Appointments may be arranged. University faculty frequently refer students to the center.

Group sessions can be arranged as needed. Workshops on selected study skills are presented when requested.

Services provided by the Academic Skills Center are free.

Alumni Relations

The Office of Alumni Relations is located in the 1700 W. Van Buren Building. It has been established to provide a planned, coordinated program of service and activities of mutual interest and benefit to Rush University, the Medical Center, and all alumni.

Although Rush University, founded in 1972, is a relatively young institution, it has already conferred more than 5,600 degrees in the health professions since its inception, and this dynamic growth continues.

The objectives of the alumni relations office are to provide channels for alumni of Rush Medical College, the College of Nursing, the College of Health Sciences, The Graduate College and the House Staff to remain informed of current developments at the Medical Center; develop an active interest in and involvement with their alma mater; maintain contact with fellow alumni and faculty; take advantage of continuing education opportunities offered through Rush University; respond positively through both financial and philosophical support and promote and perpetuate the high standards of excellence in patient care, education and scientific advancement consistent with the objectives of Rush-Presbyterian-St. Luke's Medical Center.

Formally organized alumni associations exist for graduates of Rush Medical College, the College of Nursing, and the Department of

Health Systems Management. As the numbers of alumni increase from the other programs, organizational efforts are being undertaken for them as well. For more information concerning membership in one of the existing alumni associations or services available through the alumni relations office, call 942-7165 (Medical College) or 942-7199 (Nursing, Health Sciences, Graduate Colleges).

Alumni Associations

Rush Medical College. The Alumni Association of Rush Medical College is an active organization dedicated to supporting the educational goals of the college. Purposes of the organization are to maintain communications between alumni and the college; to honor alumni who have given distinguished service to the profession of medicine and/or to their alma mater; to promote and encourage the highest standards of medical education; to assist the faculty and staff of the college in any way possible and to provide financial support for the operation of Rush Medical College.

Prior to its reactivation in 1969, Rush Medical College conferred 10,976 doctor of medicine degrees. Alumni and Trustees of the Medical Center were responsible for keeping active the original charter granted to the college by the State of Illinois in 1837. The alumni also maintained the Rush Medical College Library and made financial grants for postgraduate education during the college's inactive period. Rush alumni practice in all 50 states and in 11 foreign countries. Since the reactivation of Rush Medical College in 1969, Rush University has conferred more than 2,090 doctor of medicine degrees.

The Alumni Association is represented on the Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center by two alumni who are elected annually, the president and immediate past-president of the Alumni Association.

College of Nursing. The Rush-Presbyterian-St. Luke's Nurses Alumni Association is an active organization with the following goals: to unite the graduates of Rush University College of Nursing, Presbyterian-St. Luke's Hospital School of Nursing, Presbyterian Hospital School of Nursing, and St. Luke's Hospital School of Nurses for mutual assistance, protection, and preservation of fellowship; to promote the professional and educational advancement of nursing; to provide financial assistance and offer networking advice to current students; and to support the interests of the Rush University programs in nursing.

All graduates of these schools of nursing are considered active members of the Alumni Association. Each year, graduates return at Homecoming to tour the facilities and to learn what is happening at the Medical Center. From 1887 through 1968 there were 7,221 graduates of the diploma programs of the various schools. Many of them have served with distinction around the world. Since the founding of the College of Nursing in 1972, Rush University has conferred over 2,800 nursing degrees.

Many alumni support the Rush University nursing programs financially through the Golden Lamp Society, which provides leadership gifts to the college.

College of Health Sciences. The Alumni Association of the Department of Health Systems Management program is dedicated to the following goals: to advance knowledge and techniques in the field of health systems management; to maintain interest in potential and enrolled students; to facilitate graduate participation in continuing education activities; to provide objective recommendations for the development of the program; to provide opportunities for graduates to share their work experiences with students and other alumni; to serve as a network for job search and career advancement.

The first class of ten students graduated in June, 1981. Since that time the Alumni Association has grown to 138 members. An annual meeting and reception is held in conjunction with the Health Systems Management National Invitational Symposium on Hospital and Health Affairs.

Rush Surgical Society. This society recognizes the many surgeons who have been trained at the Medical Center but who may not have been graduates of Rush Medical College. Members automatically include all past, present and future trainees and faculty who have participated in a surgical laboratory, surgical clinical program or both.

The society's purpose is to support the Medical Center by promoting educational, scientific, and social aspects relating to surgery.

Medical Society. An equivalent group was established in medicine called the Rush Internal Medicine Alumni Association. This society was officially launched in April 1987. The society's purpose is to facilitate contact and communication among former internal medicine house officers and to honor alumni who have given distinguished service to the profession of medicine.

Biomedical Communications

The Department of Biomedical Communications provides media production, audio/visual and technical services for patient care, education, and research. Offices are located on the fourth floor of the Academic Facility.

Medical Photography creates photographic prints, slides, transparencies, and photomicrographs. The staff of scientific photographers offers a variety of services from the creation of visuals for classroom use to visuals that appear in national and international publications and conferences.

Medical Illustration and Design creates visual material to facilitate communication of both simple and complex medical health care information. The staff are available to produce a broad range of illustration styles including realistic anatomical/surgical renderings, abstract graphics, nonmedical illustration and charts. Graphic design services staff are available for coordinating and producing brochures, logos, exhibits and promotional materials. In addition, computer generated art is available in color or black and white for publication or slides.

Media Services provides a wide variety of projection and technical support: the production of media programs in television, slide/tape, and audio formats, consulting and training in the design and use of media systems; and conference and lecture support. The section operates the Communication Skills Training Center and the Rush Television Network including the Patient Information Network, Professional Education Network and Surgical/Pathology Television System.

Bookstore

The Rush University Bookstore is a medical bookstore serving the needs of students, faculty and staff at Rush-Presbyterian-St. Luke's Medical Center. The bookstore stocks the required and recommended textbooks for courses offered at Rush University, as well as an assortment of reference and review books. Students and staff receive a 10% discount on stocked books when presenting an I.D. Special orders are handled by the bookstore and will generally be received in one to two weeks. The discount does not apply to special orders.

Lab coats and medical-surgical equipment may also be purchased in the bookstore. School supplies, greeting cards, and Rush insignia items are also available. The Rush University Bookstore is located on the ground level of the Academic Facility.

The Campus

The main campus of the University/Medical Center is located on the west side of Chicago not far from the Loop. The area surrounding the campus is undergoing much redevelopment. Of particular interest is the Chicago Technology Park, which incorporates biomedical research facilities and programs. New townhomes and condominiums have been built in Garibaldi Park, just east of the campus, and many new businesses are flourishing in the Taylor Street area. With other health care facilities in the Medical Center District---including the University of Illinois-West Campus, Cook County Hospital, Westside Veterans Administration Hospital, and Illinois State Psychiatric Institute---Rush is centrally and conveniently located. In 1989, The Inn at University Village, a hotel with Benjamin's restaurant, opened on a corner adjacent to the Medical Center.

The main campus now consists of 22 buildings. This includes facilities for achieving the goals of the Medical Center: patient care, education and research. The main campus also includes an indoor parking facility.

Most student activities take place in the Academic Facility and Schweppe-Sprague Hall. The Library of Rush University and the McCormick Learning Resource Center are in the Academic Facility, along with classrooms, laboratories, academic computing, specialized facilities, the Rush University Bookstore, cafeteria, and some administrative offices, including those for Rush Medical College. Schweppe-Sprague Hall houses student services personnel, classrooms, a student lounge and activity center, administrative offices for the College of Nursing and the College of Health Sciences, and other specialized facilities, such as the Student Counseling Center.

Housing options for students include limited room in Schweppe-Sprague Hall and apartments at Center Court Gardens, located just east of the Medical Center. Many students also live in private housing in the area surrounding the Medical Center.

Laboratories are located throughout the Medical Center complex but are principally found in Jelke-Southcenter.

In addition to the main campus, Rush includes Rush North Shore Medical Center, located in Skokie, and Copley Memorial Hospital located in Aurora. Directly across the Eisenhower Expressway from the main campus is an office building for ANCHOR Health Maintenance Organization, finance, legal affairs, philanthropy and communication, the data center and other functions of the Medical Center.

Tennis courts and a running track are located on the main campus as well as an indoor parking facility.

The Office of Student Affairs distributes a campus map to new students and publishes a student handbook annually. The handbook includes a yellow pages section that provides locations and telephone numbers of persons, offices, departments and buildings of interest to students.

Counseling Services

Open all year, the Student Counseling Center provides professional counseling, at no charge to students, for a variety of concerns ranging from academic problems to issues of personal development. Students have sought help for test anxiety, insomnia, study difficulties, career questions, eating disorders, parenting concerns, general anxiety, depression, and marital and/or relationship problems. In addition to counseling of individuals and couples, the center offers group and workshop experiences. The center has offered ongoing support groups for male nursing students, first-year medical students, and students with compulsive eating problems; in addition, a workshop on assertiveness training in medical school clerkships has been offered.

The Student Counseling Center maintains strict standards of privacy and confidentiality. No information on an individual student is released to anyone, inside or outside of the University, without the prior consent of the student. No student contact with the Counseling Center becomes a part of any other University record.

The office is located on the eighth floor of Schweppe-Sprague Hall.

General Educational Resources

The Office of General Educational Resources (GER) is responsible for providing students, faculty and staff with a wide range of services necessary for carrying out both laboratory and classroom instruction. GER's management of the spacious, flexible facilities located on the seventh floor of the Academic Facility enables it to meet multiple needs for educational space, equipment, and other support. In addition, GER manages the flexible classrooms located at the south end of the seventh floor and also operates the Quick Copy Center. The multidisciplinary laboratory complex consists of eight laboratory/classrooms, seven support rooms and a central core demonstration area. Within the area are the electron microscope facilities and a small dark-room for scientific use by faculty and students. GER staff offer cardiopulmonary resuscitation and basic life-support training for individuals and

groups. The office is responsible for provision of microscopes and other scientific equipment for educational uses, including the microscope rental plan (see below).

The Quick Copy Center, located on the seventh floor of the Academic Facility, duplicates materials for educational purposes as well as general needs. A full range of services, including front and back copying, full color copying, electronic page formatting with graphics and typesetting, and multiple binding options are offered through the center. Special rates are available to students for note cooperatives and organizations. Personal work of over ten copies can be accommodated for faculty and students at a reasonable fee.

Students and faculty who have instructional needs which require special accommodations should check with the supervisor of general educational resources for assistance. GER space is routinely open 50 hours during the week for scheduled classes, noncurricular instructional activities and study. Teaching and learning aids, such as microscopes, can be made available upon request. Classroom space is usually open for study purposes from 5:00 p.m. to 8:00 a.m.

Microscope Rental. Students must have microscopes for medical technology, anatomy, and pathology courses. Students who do not own a microscope may rent one through Rush University (see Financial Affairs). A carrying case and an off-campus pass (valid for the duration of the rental period) are provided with each rental microscope. Since students will be held responsible for microscope damage and loss, homeowner's or apartment insurance is recommended. GER provides lockers to store the microscopes and distributes major course syllabi and microscope slide sets to those lockers.

Library of Rush University

The Library of Rush University, although the oldest health sciences library in Chicago, maintains an up-to-date collection of books and journals that serve the entire University and Medical Center. Housed in an attractively furnished two-story area, the library has large easy chairs, carrels, and tables for studying or reading.

A staff of eight professional librarians and 20 technical personnel is available to assist library patrons. Guided tours and an orientation to the library are available during registration periods and on request. The library schedules frequent classes for individuals and groups on the automated catalog and mini-MEDLINE systems. There are also classes on library research and

end-user computer searching, tailored to meet the specialized needs of different departments. The Library Guide describes library services, circulation periods of books and journals, and hours of operation.

Patrons are encouraged to use the automated library catalog for information about books, journals, and audiovisuals. The catalog identifies items by subject, any word in the title, author, or year of publication. Information about the item---whether it is checked out or on the shelf, and where it is located in the library---is provided. An important feature of the automated catalog is the ability to find recent journal article references and abstracts by searching mini-MEDLINE. This abbreviated version of the National Library of Medicine's database MEDLINE includes almost five years of 400+ journal titles to which Rush subscribes.

The library also offers moreMEDLINE which contains all journal article references and abstracts from MEDLINE including the years 1990 to the present. The MEDLINE database indexes over 3400 journals, U.S. and international, in the fields of medicine, dentistry, public health, allied health, nursing, and veterinary medicine.

Reference librarians provide assistance in locating and obtaining information and published materials. They also search computerized data bases in medicine as well as related disciplines.

The library also has a collection of CD-ROM computer databases, several accessible through a local area network (LAN), in specialized subject areas that are available for patrons to perform their own computer searches.

McCormick Learning Resource Center

The Chauncey and Marion Deering McCormick Learning Resource Center (MLRC) of the Library of Rush University is an audiovisual learning facility which houses an audiovisual media collection and provides on-site support equipment for its use. MLRC is designed to encourage independent study and self-enrichment. Seven rooms allow large and small group media viewing with either 1/2" VHS video-cassette, 3/4" videocassette, 16mm film, videodisc, audiocassette, slide, or slide/audio-cassette. Three of the rooms are connected to the Rush Television Network, the Medical Center's closed-circuit television patient education system. In addition there are seven stations for individual video-cassette viewing. A multimedia classroom seating 24 people is now available for use. MLRC staff are always available during service hours to help with equipment operation.

Primary purposes of the MLRC are to build the audiovisual media collection and provide services for the Medical Center which include purchase, preview, rental, and interlibrary loan of audiovisuals. The media collection is accessible by the Library Information System (LIS), the joint Library/MLRC on-line catalog. All media in the collection have been previewed and recommended for purchase by faculty. All programs in the collection may be reserved in advance by faculty and students for use within MLRC or elsewhere in the Medical Center.

The MLRC provides complete media reference services. The staff assists faculty and students in locating commercially produced media for use within their courses. This service includes consultation with various computerized databases and compilation of customized media bibliographies from which faculty and students may select titles for preview.

MLRC provides free, portable electric typewriters and portable audiocassette recorders to students for overnight use at no charge.

MLRC staff will arrange individual and group orientations to departmental services upon request. Additionally, MLRC sponsors monthly showings of recent films of general interest to health sciences professionals.

Service hours are as follows:

Monday through

Thursday	8:00 a.m. - 11:00 p.m.
Friday	8:00 a.m. - 6:00 p.m.
Saturday	9:00 a.m. - 6:00 p.m.
Sunday	1:00 p.m. - 7:00 p.m.

Hours are shortened during university break periods and in summer. The MLRC serves as a 24-hour study hall.

Student Affairs

The mission of the Rush University Office of Student Affairs is to provide an atmosphere that will enhance students' academic experience. The student affairs staff works closely with students, faculty and administration to identify areas of student need and to design and implement programs and policies to meet those needs. The office makes special attempts to sponsor social, multicultural, recreational and educational activities that include students from all programs within the University. The Office of Student Affairs is located in Schweppe-Sprague Hall, room 023.

Clubs and Organizations. The Office of Student Affairs is always interested in helping students establish new clubs and organizations in

addition to informally advising the current organizations.

Some of the current organizations include: Rush University Board, American Medical Student Association, Christian Medical Dental Society, Med Tech Club, Nursing Christian Fellowship, Nursing Student Government Association, and the Student Nurses Association. A complete description of these organizations is listed in the student handbook which is available from Student Affairs.

Rush University Board. Representing the entire university, the Rush University Board initiates and sponsors programs of interest to all Rush University students. The primary objective of the board is to plan and implement programs and activities that will enhance the cocurricular life of the Rush student community.

In the past, the board has sponsored programs including a weekly video series, Casino Night, financial planning seminars, Friday evening socials known as "T.G.I.F.s", Rush University Day and noontime treats.

Membership on the board is open to any interested Rush University student. Students who want to serve on the board are encouraged to contact the Office of Student Affairs at (312) 942-6302.

Student Representation. Student representation is unique to each college. Class committee and Faculty Council representatives comprise the Student Council of Rush Medical College. The council's purposes are to increase communication among the four classes and to give students a combined, representative voice on issues that confront them. Elections for Student Council and several standing committees are held each spring and fall quarters.

The Student Senate in the College of Nursing is comprised of students elected to various committees such as admissions and evaluation, curriculum, affirmative action, educational resources, faculty resources and development, and faculty senate. In addition, course representatives are elected.

Students are elected to membership on the College Council in the College of Health Sciences and also serve on committees in individual programs. Students in The Graduate College elect two students to serve on The Graduate College Council.

Career Development. Each student is assigned an academic advisor who is a member of the faculty. The advisor is knowledgeable about the student's educational program and provides assistance in curriculum selection, academic

progression, and professional and career development.

Within Rush Medical College, an assistant dean within the Office of Medical Student Programs has specific responsibility for providing counseling about specialty choice and application for postgraduate residency positions.

Each year, the Office of Student Affairs sponsors programs to acquaint undergraduate students with a variety of job opportunities available at health care institutions. Additionally, Student Affairs offers assistance in resume writing and interviewing techniques and maintains recourse materials to aid students in their job search. The Office of Student Affairs acts as the placement center for undergraduate students. Biographical data and faculty recommendations are kept on file and sent out at the students' request.

Lockers. The University provides lockers for the storage of coats and books. New students receive locker assignments at orientation. Since the Medical Center assumes no responsibility for the loss of personal property from lockers, it is unwise to store valuables, such as purses or tape recorders, in the lockers. Additionally, students should be aware that all students share lockers. If any difficulties with a locker arise, contact the Office of Student Affairs.

Mailboxes. Campus mail is delivered to student mailboxes located on the seventh floor of the Academic Facility and in the Office of Student Affairs (SS 023). Since no United States mail is delivered to these mailboxes, arrangements should be made to have all personal mail sent to home addresses.

New students receive mailbox assignments at orientation and should check for mail daily because University personnel distribute dated material through this campus system. Since students are held responsible for meeting deadlines announced in the dated material, students who will be off campus for an extended period of time should make arrangements to have a friend forward campus mail. The Office of Student Affairs is not responsible for mail that accumulates during a student's absence. Students may obtain interoffice mail envelopes from the Office of Student Affairs.

Recreation. Rush University students have the opportunity to utilize several facilities in the area for recreation, relaxation, and physical conditioning.

- A jogging track (approximately one-fifth of a mile) surrounds four outdoor tennis courts

- next to the Atrium Building on the corner of Ashland Avenue and Harrison Street.
- Rush University students may also use recreation facilities at the University of Illinois - Chicago. The south wing of the Circle Center and the Illini Center provide space for archery, table tennis, bowling, swimming, billiards, handball, racquetball, tennis, badminton, volleyball, weightlifting, target practice and jogging. Students presenting a valid Rush University identification card are eligible for admission at reduced rates. Schedules of the facilities, rates, and hours of operation are posted in the Office of Student Affairs at Rush University.

Housing. Resident students may live in Center Court Gardens and on two floors of Schweppe-Sprague Hall. All of these buildings are located within the Medical Center. Individual units range from single occupancy dormitory rooms in Schweppe-Sprague Hall to two-bedroom apartments in Center Court Gardens that accommodate four students. When filled to capacity, current facilities meet the housing needs of 25 percent of the total student enrollment.

Application Process. Students applying for admission receive housing applications as part of the admission process. Returning students may request a housing application from the Office of Student Services, room 119, Schweppe-Sprague Hall.

Because on-campus housing is in great demand, the following set of priorities has been adopted by the Office of Student Services for assigning students to available units. Students in category number one receive the highest priority followed by those in category number two, etc.

1. Students who wish to retain their present University housing assignment for the following year.
2. Students who wish to change their present University housing assignment to a different unit for the following year.
3. Incoming undergraduate students from affiliated colleges.
4. Incoming undergraduate students from nonaffiliated colleges.
5. Incoming graduate and medical students who do not live in, and whose families do not live in, the Chicago metropolitan area.
6. Incoming graduate and medical students who live in, or whose families live in, the Chicago metropolitan area.
7. Returning graduate and medical students who live in, or whose families live in, the Chicago metropolitan area.

These priorities will be used as a guide by the Office of Student Services when assigning housing. Students must meet all established deadlines regarding the application process. A returning student living in University housing, for example, who fails to submit a housing application for the succeeding year by the published deadline will not retain his/her number one priority. In addition, other factors such as financial need, room availabilities or unique individual circumstances may be considered as exceptions. Thus, the Office of Student Services reserves the right to make exceptions to these priorities when extenuating circumstances exist.

As already stated, on-campus housing is in great demand. Consequently, to maximize available space the following configurations will be used in the assignment process:

Schweppe-Sprague	One student
Center Court Gardens		
Studio	One student
One Bedroom	One-two students
Two Bedroom	Two-four students

Notification of acceptance into University housing will be sent to each student assigned to on-campus housing. For students who wish to retain or change their housing assignments for the following year, notification will take place approximately April 15 each year. Entering students must receive an acceptance for admission before any housing notification will be sent. Notification to entering students will begin approximately May 1.

A lease will accompany each letter of acceptance into University housing. The lease must be signed and returned with a security deposit of one month's rent. Failure to return the lease and the security deposit by the specified deadline will result in the loss of the housing assignment. All inquiries regarding housing assignments should be directed to the Office of Student Services.

Rent is payable in equal quarterly installments. Students are billed for rent along with tuition and fees prior to the beginning of each quarter.

Consolidation Policy. In an effort to maximize the number of on-campus housing spaces available to Rush University students, some consolidation of tenants may occur. This consolidation policy will affect only those students who occupy an apartment by themselves that was originally leased to two or more students. Such a situation can occur when a roommate has left University housing during the course of the academic year.

If consolidation is necessary, students involved will be informed in writing. At that time

the student will have the following options: share an apartment with another student in any building who is also in need of a roommate; find a Rush University student roommate of his/her choice; have a roommate assigned from the available applications or pay the full rent of the apartment.

If the fourth option is chosen, the apartment will become a single accommodation only through the end of the current lease. If the student wishes to renew the lease, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

After all apartments have been consolidated, any available apartments will be offered to students desiring housing. If compatible roommates are not available, a unit may be rented as a single accommodation at the full rental rate of the unit only until the end of the lease. At such time it will revert to multiple occupancy. Again, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

Students should address questions concerning the application process, assignment process, or roommate selection to Dr. William Wagner (telephone 312-942-6796).



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Registration

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Course credits are not calculated for Rush Medical College students. However, the number of weeks of clinical experiences appears on the transcript of the academic record.

Registration Process. Each quarter a timetable of classes is published by the Office of the Registrar for the subsequent quarter. Classes are filled on a first-come, first served basis according to the following order of priority: continuing students, new students and unclassified students.

Required Signatures. Registration forms are processed only if the required signatures are obtained. Each student must obtain his/her advisor's signature. Registration for more than 16 credits for graduate nursing students or more than 17 hours for all others requires written permission from the program director. The nature of some course offerings may require the instructor's signature in addition.

Registration for Medical Students. Registration for preclinical studies is done administratively except for electives, including the minicourse series (BHV 473). Registration for clinical studies is done in the Office of Clinical Curriculum.

Confirmation of Registration. Registration is confirmed on student data sheets which include courses in which the student is enrolled, billing, and financial aid information. Closed or cancelled courses are posted in the registrar's office. No message appears on the data sheet if the student did not get all requested courses.

Completion of Registration. Registration is complete only when tuition and other charges for the quarter are paid or satisfactory arrangements for payment are made. Registration for subsequent quarters is denied to student not cleared by the bursar. Tuition is due on the first day of the quarter. (See section on Financial Affairs).

Late Preregistration Fee. Students in the College of Nursing registering after the posted registration period prior to the beginning of each quarter will incur a \$50 late registration fee. This is imposed following initial matriculation in a degree program within the College of Nursing.

Unclassified Students. Persons desiring to enroll in a course may do so on a special *Unclassified Student Registration Form* obtained in the Office of the Registrar. The instructor's approval on the form constitutes approval for registration. An instructor is not obligated to accept any unclassified student in his/her class, and students without appropriate background take courses at their own risk. Payment of tuition is required before the forms are processed. The bursar will charge tuition at the rate applied to graduate students. However, neither instructor approval nor payment assures a place in the class since students in degree programs have priority for enrollment in all courses. Therefore, unclassified student registration forms are processed only during the week immediately prior to the first day of classes. Notification is by mail. If an unclassified student cannot be accommodated in a class, a full refund of tuition will be mailed, usually within two weeks.

A student may accumulate no more than 12 quarter hours of academic credit as an unclassified student. These 12 hours, equivalent to a full-time one quarter course load, may be taken in one quarter or over a period of time. Registration as an unclassified student that results in more than the maximum number of hours (12) will be permitted if the dean (or his/her designate) of the college offering the course(s) has signed the registration form.

Credit earned as an unclassified student will not necessarily apply toward a Rush degree if the unclassified student is subsequently admitted to a degree program.

Pass/No Pass Option. The timetable indicates all courses that may be taken pass/no pass. One may register to take a course pass/no pass simply by putting an "x" in the P/N column on the registration form.

A student deciding to take a course pass/no pass after having initially registered should complete a *Pass/No Pass Option Form* available in the Office of the Registrar. This form may require the signature of the instructor as well as the advisor and must be submitted by the second Monday of the quarter. The form may also be used to revert to the letter grade option.

All medical students are graded honors (H), pass (P) or fail (F).

Graduate students in nursing may take no more than 20 percent of their total graduate course credits under the pass/no pass option. Therefore, if a nursing student has 55 quarter hours to earn a masters degree, he/she may earn 11 hours pass/no pass; the student who graduates with 125 quarter hours may take 25 hours pass/no pass. Thesis and dissertation hours (NSG 598 and 699), which are graded only pass/no pass, are in addition to the 20 percent limit.

Precandidacy research is graded P/N in The Graduate College. Divisional policies vary on the pass/no pass grading of other courses.

Independent Study. To register for independent study, students complete the form on the back of the registration form. This form identifies the title of the study to be posted on the student's transcript, the preceptor's name and office location and the number of credits for the study. The advisor's signature is required on both the front and back of the registration form.

Nursing students complete an *Independent Study Contract Form*, which is available in the Office of the Registrar. On this form the objectives of the study are defined, a plan to meet those objectives is described, etc. It should be completed and approved by the preceptor, department chairperson and the program director no later than the first day of the quarter in which the independent study is to be taken. The student's preceptor keeps the contract.

Health Systems Management students must register on the back of the registration form and also complete a separate form available in the Health Systems Management office (KD 3).

Drop/Add. The only way to change course registration is to complete a Drop/Add Form available in the Office of the Registrar. The official date of the drop/add action is the date that the drop/add form is processed by the Office of the Registrar. A course dropped during the first week of the quarter will not appear on the student's transcript. After that point one of the following policies apply.

Course Dropped in Weeks 2-5:

Grade of W

Course Dropped in Weeks 6-End:

Grade of WP, WF or WN

No course may be dropped after the last day of classes. No withdrawals are allowed during the final examination period. Students must obtain the appropriate advisor's signature before the form will be processed. Forms that do not have an advisor's signature will be returned to the student.

Medical students wishing to change their clinical schedules must contact the Office of Clinical Curriculum at least four weeks before the start of the scheduled clerkship.

Withdrawal from School and Leave of Absence. Students may not merely quit going to classes. A formal withdrawal must be made, and the appropriate signatures obtained on the *Clearance Form* available in the Office of the Registrar. No withdrawals are allowed during the final examination period. Refunds are made only during the limits for refunds. (See Financial Affairs section.) This is also required of those going on leave of absence in addition to any requirement for applying for the leave as stated under specific program policies. This procedure assures that students do not obligate themselves for additional tuition, financial aid, and insurance. Insurance may be continued under certain conditions. Failure to complete the form makes the student ineligible for any refunds and the student incurs insurance charges for the full quarter. Withdrawal is not allowed after the last class day of the quarter.

Off-campus Concurrent Enrollment. Under special circumstances students may apply to take courses offered by another college or university as if they were Rush University courses. These courses are taken as integral parts of the student's curriculum, either replacing required Rush courses or fulfilling special career or discipline objectives. Completion of the *Concurrent Enrollment Form* obtained in the Office of the Registrar to authorize payment of tuition at the other institution. Students, often with the help of their advisors, make their own arrangements to take a course at another institution, and they register at Rush for the appropriate hours of credit and pay the Rush tuition rate. Students must provide an official transcript from the other institution, and a grade for the course will be recorded on the Rush transcript.

Auditing a Course. Any person may audit a course only with the permission of the course director. No record is kept of this status nor is there any registration or fees attached to this status. The course director is under no obligation to allow a student to audit and normally will not allow taking of course examinations. An auditor may participate in class discussion only at the invitation of the course director. Auditing of laboratory or clinical course is prohibited. Students who have audited a course may not apply for credit at a later time; such student must enroll and pay for the course when it is offered again.

Identification Card. Each student receives an identification card at matriculation. Each term the card is validated when satisfactory arrangements have been made for the payment of tuition and fees.

A valid ID card is needed for identification within the Medical Center complex, for use in the library, labs, LRC, bookstore, and for admission to some school events. A clip is provided to display the card

Lost or stolen identification cards may be replaced at the Office of the Registrar from 2:30 - 4:00 p.m. daily. There is a \$5.00 fee for this service.

Academic Records and Policies

Grade Point Average

The grade report and the transcript of the academic record shows a grade point average (GPA) for each quarter in which grade points were earned and shows a cumulative GPA for all work taken at Rush. The GPA is computed by dividing the number of earned grade points by the number of quarter hours of credit attempted for those courses. When a course is repeated the second grade only is computed in the GPA. No grade points are assigned for work taken on a pass/no pass basis and, therefore, are not computed in the grade point average. Grade point averages are not included for students in Rush Medical College since all courses are taken on an Honors/Pass/Fail system.

Repeated Courses. Some courses are allowed to be repeated such as research and clinical courses. These are usually indicated in the course description or the *Timetable of Courses*. All grades and grade points are counted in the grade point average for these courses. For all other course which are repeated, only the last grade is counted in the grade point average. Both takings of the course appear on the academic record and transcript.

Repeated Courses - Rush Medical College. The official transcript carries the first taking of a repeated course until a second grade is recorded at which time the transcript shows only the second taking and grade earned. Both takings are recorded on the academic record for internal use within the medical college. Since all courses are taken H, P, F no grade point average is affected.

Grade Report. A quarterly grade report is mailed to each student's local address as soon as grades have been recorded each term. Grades are usually mailed within five working days of the end of the examination period. Grades neither will be issued over the phone nor given to students who attempt to pick them up in person.

Grading System

Grade	Quality	Grade Points
A	Excellent	4
B	Good	3
C	Satisfactory for Undergraduates but may not be acceptable at the graduate level	2
D	Minimal pass for undergraduate and may not be acceptable at the graduate level in the College of Health Sciences. Not used at the graduate level in the College of Nursing, The Graduate College or Health Systems Management	1
F	Failure	0
P	Passing	
N	Not Passing	
H	Honors - Rush Medical College only	
W	Withdrawal prior to midterm	
WP	Withdrawal passing after midterm	
WN/ WF	Withdrawal failing after midterm WN for courses taken pass/no pass	
K	Credit earned through proficiency examination	
NR	Grade not reported by instructor	
IP	Course is still in progress	
I	Incomplete	
CC	Course continues into the next quarter. Grade received at the end of the series is the grade for the entire course	
XX	Participation in an ungraded course or residency	

Rush Medical College uses honors (H), pass (P), and fail (F)

A copy of the grade report is given to academic advisors. Grades are never released to parent, legal guardians, or spouses.

The quarterly grade report is the student's copy only, and it should not be accepted by an institution or agency in lieu of an official transcript.

Academic Record. The permanent academic record is the student's official transcript that includes all course work taken at Rush University. External transcripts for medical students reflect the highest grade reported for each course at the time a transcript is requested. The academic record is maintained permanently in the Office of the Registrar.

Transcript Requests. Copies of the academic record may be obtained at no cost to the student or former student. These transcripts are released only with prior written consent of the student. Students may either complete a transcript request form or write the Office of the Registrar, 1743 West Harrison Street, Chicago, Illinois 60612. The letter must include a handwritten signature of the student. Transcripts will not be released if the student has an outstanding financial obligation to the University. Four working days should normally be allowed for processing.

Transcript requests by medical students to be used in support of residency applications should be made to the Office of Clinical Curriculum of the medical college rather than to the Office of the Registrar. A "dean's letter" is included with these requests.

Copies issued to students will be stamped in red ink "Issued to Student." All copies bear the signature of the registrar or his/her designate and the seal of Rush-Presbyterian-St. Luke's Medical Center.

Incomplete Grades. Students receiving a grade of incomplete (I) must enroll for the subsequent quarter to complete requirements for the course. A change of grade cannot occur unless the student has been enrolled. Students enrolling only to complete requirements for a course in which a grade of incomplete was given must register for an enrollment course in the appropriate college for zero credits. The registrar's office will assist the student with this process. These courses carry the nominal enrollment fee (see Financial Affairs section). See program descriptions for additional information pertaining to incomplete grades.

Dissertation and Thesis. Some programs require a master's thesis to meet requirements for the M.S. degree. Nursing students working for the D.N.Sc. degree and Ph.D. candidates in The Graduate College must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a thesis or dissertation will follow the sequence of steps as described by each college including the prescribed preparation manual for each degree. Copies of these

manuals are available in each graduate division and in the Library of Rush University. Each thesis or dissertation must be original and cannot have been used to meet the requirement of any other degree, either at Rush University or any other university.

Each student will have a committee whose role is to assure that the student's thesis or dissertation is of high quality and meets the standards of the program and the university for originality, contribution to the field and scholarly presentation. The Committee is also to assure that the student is making satisfactory progress toward completion of the dissertation.

At or near the completion of the thesis or dissertation, each student will share with the academic community at large the knowledge that the student has developed through a public presentation. Students are responsible for posting announcements on institutional bulletin boards of the presentation that contain the title of the dissertation, the student's name, and the location, date and time at least two weeks prior to the presentation. This public presentation must precede the final approval of the dissertation by the Thesis/Dissertation Committee.

A copy of the thesis or dissertation must be approved by the director of the Library of Rush University, microfilmed by University Microfilms International, and a copy bound for permanent cataloging in the library.

Students must complete all requirements for the degree as well as all steps pertaining to the thesis or dissertation before May 15 in order to be eligible for participation in commencement for that year.

Commencement

Commencement Ceremony. Rush University commencement is held annually at the end of the spring quarter. The exact date for commencement is published in the academic calendar appearing in the timetable of classes and in the *Rush University Bulletin*. Students will be notified by the Office of Student Affairs concerning participation in the event. Students are expected to march in commencement exercises.

The Office of the Registrar asks students to specify how they want their names printed on their diplomas and in the commencement program. Students also will be asked to supply a forwarding address where mail can be sent after graduation.

Information regarding degree requirements, deadlines and eligibility to participate may be obtained from program directors. Students whose academic plans change, making them ineligible to participate in the June ceremony, will

be deleted from the commencement list for that academic year. However, they are then eligible to participate the following June should they successfully meet degree requirements. During the ceremony, diplomas are given to students who have completed their programs, discharged their financial obligations to the Medical Center, and returned all library books and other University property. Students will be notified of all outstanding obligations, and the Office of the Registrar will encumber the diplomas and transcripts of students until these obligations are met.

Awarding of Degrees. Rush University degrees are granted on the Saturday of the quarter in which all degree requirements are completed. When degree requirements are met during the break following a quarter, the degree will be dated the end of the subsequent quarter. Degree requirements include all curricular and other program prerequisites, such as required courses, residency, minimum grade point average, cumulative quarter hours, etc. (See program descriptions for details). Before a degree may be granted, all grades of incomplete (I) must convert to final grades.

Outstanding financial and other Medical Center obligations have no effect on the awarding of degrees; however, the diploma, student transcript and other notification of a degree awarded will be withheld until these Medical Center obligations have been met.

Graduation Requirements. See program descriptions for specific requirements. Each candidate for the degree of D.N.Sc., Ph.D., or M.S. with thesis is required to submit a degree approval form to the Office of the Registrar after completing all academic requirements including dissertation defense and submission of the dissertation to the library for microfilming. Doctoral candidates may not participate in the commencement ceremony before submitting this form.

Dual Degree. (Undergraduates in nursing and medical technology) Some affiliated colleges award a bachelor's degree to students who have transferred to Rush University. Students receive the degree after they have met degree requirements of the affiliated college. Often those requirements have been modified slightly to accommodate the unique nature of the affiliated-Rush program. Questions regarding degree requirements and eligibility should be directed to the registrar of the affiliated college.

To receive a degree from the affiliated college, each student must authorize the registrar

of Rush University to send an official transcript of Rush course work to the affiliated college.

Graduation Honors. Candidates for the bachelor of science degree who have demonstrated academic excellence are honored at commencement by the Rush University faculty. Those earning a 3.4 or better grade point average based on six quarters at Rush are awarded the bachelor of science cum laude; those with 3.6 or better, magna cum laude; those with 3.8 or better, summa cum laude. Only Rush University course work is calculated into the grade point average. Honors appear on the student's diploma and are announced during the commencement ceremony.

Prizes and Awards. Most of the following prizes and awards are given annually at college/departmental ceremonies in June immediately before the Rush University Commencement.

The Aesculapius Award to the outstanding resident-physician as voted by the medical students.

The American Medical Women's Association Scholarship and Achievement Citations honoring women in the graduating class of Rush Medical College for outstanding scholarship and achievement.

The Arthur Dean Bevan Award to the graduating medical student who has demonstrated clinical and academic achievement in surgery.

The Cardiology Prize to the graduating medical student who has had the best performance in a cardiology elective course.

The Ciba-Geigy Award for outstanding community service by a sophomore medical student.

College of Health Sciences Dean's Award to an Undergraduate Student for outstanding academic achievement.

College of Health Sciences Dean's Award to an Graduate Student for outstanding academic achievement.

The College of Nursing Dean's Award for superior academic achievement.

College of Nursing Teaching Excellence Award to the outstanding faculty members as selected by the graduating students and as selected by the faculty.

The Communication Disorders and Sciences Awards to the outstanding graduate students in audiology and in speech-language pathology as selected by the faculty.

The Daniel Brainard Award to the outstanding teacher in the basic sciences as voted by the medical students.

The David Peck Prize to the student who has made the greatest contribution to the Student National Medical Association.

The Dayton Ballis Humanities Fellowship to a Rush Medical College student for academic excellence in the humanities related to medicine.

The Department of Family Practice Award to the graduating student who has demonstrated academic excellence in family medicine

Department of Health Systems Management Award to the outstanding graduate student as selected by the faculty.

The Department of Pediatrics Award to the graduating student who has demonstrated outstanding achievement in pediatrics.

The Dianne Nora Clinical Excellence Award to the master's student who has demonstrated outstanding performance in clinical nursing courses.

The E. Virginia Pinney Award endowed in 1985, is given to the graduate student who has demonstrated outstanding leadership potential in the profession of dietetics.

The Freeland Scholarships for prelicensure nursing students who have demonstrated outstanding academic and clinical performance.

The GATE Pharmaceuticals' Outstanding Student Award to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients

The Gerontological Nursing Award to the undergraduate student who has demonstrated excellence in gerontological nursing.

Golden Lamp Society Award to the outstanding doctor of nursing science student for research and scholarship.

The Graduate College Award for excellence in research among students enrolled in The Graduate College.

The Graduate College Faculty Award to the outstanding teacher on the faculty as selected by the students.

The Henry M. Lyman Memorial Prize endowed in 1908, is given each year to a junior medical student for outstanding work as voted by the faculty.

The James A. Schoenberger Prize in Preventive Medicine for outstanding academic work in disease prevention and health promotion

The James B. Herrick Internal Medicine Award to the graduating student who has demonstrated outstanding achievement in internal medicine.

The John Giles Prize for outstanding undergraduate work in epidemiology and public health as selected by the Department of Preventive Medicine.

The Kellogg Scholarship Award to Doctor of Nursing Science Student for superior academic achievement.

The Lemmon Company Student Award to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

The Luther Christman Award from the Nursing Alumni Association to the prelicensure nursing student moving directly into post-baccalaureate studies who has demonstrated outstanding academic and clinical performance and leadership.

The Mary S. Oakley Gerontological Nursing Research Award for academic excellence and outstanding research.

The Nathan M. Freer Prize endowed in 1892, is given to the outstanding senior medical student as voted by the faculty.

The Nephrology Award from the Muehrcke Family Foundation to the medical student who has demonstrated outstanding achievement in the field of nephrology.

The Nursing Alumnae Clinical Excellence Award to the prelicensure nursing student who has consistently demonstrated outstanding clinical performance.

The Occupational Therapy Faculty Award to the outstanding graduate student who has demonstrated a balance of scholarship, humanitarianism, integrity and professional commitment as selected by the faculty.

The Sir William Osler Pathology Prize to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The Paul E. Carson Award to the student who has demonstrated excellence in pharmacology.

The Phoenix Award to the outstanding physician-teacher as voted by the medical students.

Professional Service Awards to nursing students for significant contributions in the areas of community service and/or the professional nursing community.

The Rush-Presbyterian-St. Luke's Nurses Alumni Association Awards for outstanding graduating nursing students who demonstrate academic and clinical excellence.

The Ruth E. Schmidt Endowment Fund for Nursing Education Award to the registered nurse completing the baccalaureate degree who has demonstrated potential for significant contributions to the profession of nursing

The Samuel G. Taylor III Prize to the graduating student who has demonstrated excellent achievement in medical oncology,

The Sandoz Award to the graduating student who has demonstrated outstanding achievement in the field of psychiatry.

The Sir William Osler Pathology Prize to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The Theda L. Ashley Memorial Award to the graduate student who has demonstrated outstanding achievement in food systems management.

The Upjohn Achievement Award to the senior medical student with the best research project.

Writing Award for nursing students who have demonstrated outstanding scholarly and/or creative writing.

Student Records

Name and Address Change. The Office of the Registrar maintains the current official listing of student names and addresses for Rush University. It is the responsibility of the student to keep the Office of the Registrar informed of changes in this information. A name/address change form is available in the Office of the Registrar. This change is made on the University Information System.

Directory Information Policy. Certain information classified by Rush University as directory information may be disclosed to the public. These are items of directory information: student's full name, local address and phone number, date and place of birth, home town, major field of study, year in school or class, participation in officially recognized activities, dates of attendance, degrees and awards received, previous educational institutions attended, previous majors, previous degrees and dates earned.

Each fall quarter the Rush University Student Address Book is published for student, faculty, and staff use. It contains student names, local addresses and phone numbers, the student's college and classification. At the time of commencement exercises the following information may be released in public announcements: student's full name, degree and major, previous institution and degree(s), and home town.

Students may restrict the release of any item of information considered as directory information on a form provided in the Office of the Registrar, Schweppe-Sprague Hall, 101, by Friday of the first week of classes in each quarter.

Student Records Policy. The Family Educational Rights and Privacy Act of 1974 protects the privacy of current and former students enrolled in most educational institutions. Rush University has seven official student records. A student or former student may inspect and review these records after making an appointment with the appropriate office.

The records and their locations are as follows:

- official academic record: Transcript--Office of the Registrar, 101 Schweppe-Sprague Hall.
- registrar's folder: Contains admission application, transcripts from other schools, immunization record, registration information--Office of the Registrar, 1 Schweppe-Sprague Hall.

- dean's folder: (Rush Medical College) A complete academic file that contains grade reports, written evaluations of clinical work, curricular flow charts, copies of correspondence and of all material in the Registrar's folder--Office of Clinical Curriculum, 5 Academic Facility; (College of Nursing) Contains written evaluations of clinical work, curricular flow charts, grade reports--Office of the Program Directors, 14 Schweppe-Sprague Hall.
- department folder: Contains written evaluation of clinical work, curricular flow charts, grade report copies--Office of the Program Directors, clinical nutrition, medical physics, medical technology, occupational therapy, and speech and hearing sciences-- 14 Schweppe-Sprague Hall; religion, health and human values--7 Schweppe-Sprague Hall; health systems management-- 2 Kidston Building; The Graduate College Admissions Office, 2 Kidston Building.
- financial affairs folder--Records showing all billing and payments, notes, and correspondence dealing with a student's finances--Office of Student Financial Affairs, 1 Schweppe-Sprague Hall.
- financial aid folder: All information concerning financial aid for the student--Office of Student Financial Aid, 1 Schweppe-Sprague Hall.
- placement recommendations: Contains letters of recommendation filed by faculty members at the request of the student--Office of Student Affairs, 1 Schweppe-Sprague.

Students may obtain copies of transcripts from the institution that holds the original records. Other portions of their records will be copied upon request. The request must be in writing and signed, must specifically identify the record desired and include the student's major, year, date of birth, and social security number. There is no charge for copies of the student transcript. Other reproductions cost 50 cents per page. The University honors requests providing there is no outstanding obligation to the Medical Center. Students within commuting distance may be asked to review the desired data in person.

Students may request that the University amend information in their records they believe to be inaccurate, misleading, or in violation of their privacy. If the University refuses to amend a record, the student may request a hearing to challenge that decision. A hearing will be

granted. Students may place in their educational records comments upon information in the records and/or state their grievances with a decision not to amend the record.

Administrators who maintain the records adhere to a policy of limited access to administrators and faculty of Rush University who have a need for information in order for their offices to function, to determine academic progress, or to designate award recipients. Other persons or organizations given access are those responsible for accrediting the institution, for providing the student with financial aid, for complying with a judicial court order, and for protecting the health or safety of students during an emergency.

Disclosure of any student's record to others not listed in these policies must have prior written consent of the student. Requests for information and letters of consent are kept with the records.

Immunizations

Students whose date-of-birth is 01/01/57 or later must show proof of immunization for measles, mumps, rubella, diphtheria and tetanus by the end of the first quarter of enrollment in a degree program in order to be eligible for continued enrollment. These are minimum requirements under The College Student Immunization Act of the State of Illinois. Additionally, students having direct patient contact must have immunization for hepatitis-B virus.

Human Investigation

Any project or study involving human subjects must have approval of the Medical Center Committee on Human Investigation. Studies in the community as well as within the Medical Center must have this approval. The Office of Research Administration handles all requests and has established the protocol for proper investigative procedures.

Institutional Animal Care and Use Committee

All investigators and teachers that use animals in scientific projects and in classes must submit their plans to the Institutional Animal Care and Use Committee (IACUC) for approval prior to carrying out the project or program. Members of the committee are appointed by the President and include representation from the community and from the student body. The director of the Comparative Research Center coordinates the work of the IACUC.



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Tuition and Fees

Tuition. Tuition and fees for the 1992-92 academic year are listed below. For estimates of other expenses, see the *Rush University Student Financial Aid Handbook*.

Medical students are charged for a maximum of four years of full time tuition. Students needing additional quarters to complete degree requirements will be charged the enrollment fee (see fees below). Although it may be possible for a medical student to complete all degree requirements prior to the spring quarter of his/her fourth year the spring tuition charge must be paid for a total of four years of tuition.

Fees. The following fees may be levied:

Enrollment Fee. Students in special programs are assessed \$250 per academic quarter. Students enrolled in a noncredit residency or academic enrichment program prior to receipt of their degree, must be registered for such a course and pay the enrollment fee in order to retain their student status. Any student having an outstanding incomplete after all other required coursework for the degree must enroll for no credit and pay the enrollment fee until the grade is satisfied. Single hospitalization insurance is not covered in this fee. Single coverage under ANCHOR is provided at no extra charge. (See Student Health Services Program for further information.)

Late Registration Fee. Students in the College of Nursing registering after the posted registration period each quarter will incur a \$50 late registration fee. This is imposed after initial

matriculation in a degree program with the College of Nursing.

Application Fee. A nonrefundable application fee of \$25 is required of all applicants to offset the expense of processing the application, evaluating credentials, and maintaining a library of evaluation aids. This fee does not apply to any other charges such as tuition.

Enrollment Deposit. A \$150 enrollment deposit is required of health systems management students and \$100 is required for medical students prior to matriculation. All nursing students (including affiliated students) must deposit \$75 prior to matriculation. Other health sciences students submit a \$50 deposit. This guarantees students a place in the entering class. This deposit is nonrefundable and applies toward payment of the first quarter tuition.

Microscope Rental. Microscopes are available to students for a rental fee. Students enrolled in medical technology, microbiology, anatomy, and pathology courses must have microscopes. Rental fees will be included in the fall quarter bills for first-year medical students and third year medical technology student. Students will be billed once for the entire rental period. Students taking anatomy, microbiology, and/or pathology will pay \$125 per year or \$250 for the entire two-year period (medical students). Junior-year medical technology students will pay \$125 for one year. Any student who withdraws from the University or obtains a microscope from another source should notify the coordinator of General Educational Resources who will authorize the bursar to prorate monthly the rental

Tuition	Program	Full Time Per Quarter	Per Year (four quarters unless indicated)	Part Time (1-11 cr) Per Q.H
College of Nursing	Undergraduate	\$2,980	\$8,940 (3 qtrs)	\$260
	Graduate level	\$3,380	\$13,520	\$300
College of Health Sciences	Clinical Nutrition	\$3,285	\$13,140	\$290
	Comm. Disorders & Sci	\$3,285	\$13,140	\$290
	Health Systems Mgt	\$3,350	\$10,050 (3 qtrs)	\$290
	Medical Physics	\$3,320	\$13,280	\$240
	Medical Technology	\$2,785	\$8,355 (3 qtrs)	\$290
	Occupational Therapy	\$3,335	\$13,340	\$290
	Perfusion Technology	\$3,385	\$13,540	\$290
	Ethics (part-time only)			\$290
The Graduate College	All Programs	\$3,320	\$13,280	\$290
Rush Medical College	Years 1 & 2	\$6,956	\$20,868 (3 qtrs)	
	Years 3 & 4	\$4,950	\$20,868 (4 qtrs)	
Non-degree	Unclassified Students	\$3,320		\$290

fee. (See General Educational Resources in Campus Section.)

Returned Checks. If a student gives the University a check that is returned by the bank upon which it was drawn, marked "not sufficient funds", "payment stopped", or "account closed", a \$10 charge will be assessed for each occurrence.

Payment for Tuition, Fees, and On-campus Housing

The following statement represents the payment policy for all Rush University students.

The following statement represents the payment policy for all Rush University students.

Payment for tuition, fees and on-campus housing or satisfactory arrangements for payment must be made with the Office of Student Financial Affairs before registration is complete. Students may not attend classes until after registration is complete. Any exception to this policy must be approved in writing by the vice president for academic resources.

Students have the responsibility to complete one or a combination of the following courses of action on or before the announced first day of classes each quarter:

1. Pay total tuition, fees, and on-campus housing charges for the quarter.
2. Complete a Deferred Payment Plan Contract. This plan requires that one-third tuition, all fees, and a \$15 service charge be paid on or before the first week of class. Additional payments of one-third are due on the fourth and eighth Mondays of the quarter. Contract forms are available in the Office of Student Financial Affairs.
3. Use the pending financial aid payment option. All students who have financial aid pending will be allowed to defer payment of that portion of tuition and fees that is covered by the anticipated aid. In order to use this option, students must have taken all steps required of them to apply for the aid (e.g., the application for a guaranteed student loan program must have been completed and submitted to the financial aid office). In order to avoid a late fee charge, students must make arrangements for payments of that portion of tuition and fees not covered with pending aid by completing steps one or two above.

Those students who have not made satisfactory arrangements will be given notice by mail during the third week of classes that they are delinquent in their financial obligations to the University. The notification will inform the students that they have until Friday of the fourth week of classes to satisfy all such financial obligations. On Monday of the fifth week of classes, those students who have not made satisfactory arrangements will be charged a \$100 late payment fee.

At the end of the quarter, those students who still have outstanding balances with the University that are not covered by pending financial aid will receive neither grades nor transcripts; be dismissed from on-campus student housing; lose all University privileges and have their registration cancelled for the following quarter.

Third Party Billing

All unpaid accounts are billed to the student monthly. If the student will not be personally paying the account, it is his/her responsibility for forwarding any bills to the appropriate party as soon as possible. It is recommended that a student in this situation authorize the bursar to bill their parents, spouse, or other agent directly. *Third Party Billing* forms for this purpose are available in the Office of Student Financial Affairs, Schwappe-Sprague Hall room 101.

Refund Policy

Official withdrawal or dismissal from a course or from the University entitles a student to a refund of tuition according to the following schedule. No fees are refundable.

A student may receive a 100 percent refund if withdrawal occurs during the first calendar week in which the quarter begins. Otherwise, refunds will be made as follows:

Second week	80 percent refund
Third week	60 percent refund
Fourth week	40 percent refund
Fifth week	20 percent refund
After fifth week	no refund

Students attending Rush for the first time who withdraw during their first quarter are entitled to a pro-rata refund of tuition and fees through the sixth week of attendance.

Refunds will be shown as credits on the student's account unless the student requests a check for the amount of refund, less any amount still owed for other charges. Normally, checks are processed within two weeks. Students are not notified when the check is available in the Office of Student Financial Affairs.

Student Health Services Program

The University's health services program is designed to promote the health and well being of its student population and to protect the individual student from undue financial hardships that a medical emergency could cause. To accomplish this the University offers membership in two separate group insurance policies which, when combined, fulfill its goal of student health maintenance and protection. Only students enrolled in degree programs at Rush qualify for membership in Rush University's insurance programs.

Hospitalization Plan. The first plan is a group hospitalization policy underwritten by Blue Cross covering most of the hospital charges related to an inpatient stay or an emergency room visit. Applications are available at the Office of Student Financial Affairs and at fall registration when all students are required to provide proof of hospitalization coverage or sign up for Rush's Blue Cross plan. As with all group policies, there is an annual open enrollment period when a subscriber may add dependents or make changes. Rush's Blue Cross enrollment occurs during the first two weeks of fall quarter, and the only other time a dependent may be added is within 30 days of the date of marriage or the birth of a child. A booklet available at the student financial affairs office explains in more detail the exact coverage and exclusions. The student financial affairs office is located in 101 Schwegge-Sprague Hall.

Rates listed below are subject to change.

1992-93 Rates for Blue Cross

Coverage	Per Quarter (Including Summer)
Single	\$192
Family	\$708

Although membership in Rush's Blue Cross plan is not mandatory, it is a requirement that all students carry some hospitalization insurance from their date of matriculation until graduation. Upon entering Rush many students are covered by a family policy; however, all family policies have maximum age limits for children, normally 19 to 23 years of age. As a result, even though a student may be adequately covered upon entering Rush, at some date that coverage will stop. The University has no way of knowing when this will occur; consequently it is the

student's responsibility to notify the student financial affairs office prior to that critical birthday so that there will be no lapse in coverage. This is extremely important, as all students must have hospitalization insurance. This is why, during fall registration, the financial affairs office requires all students to provide proof of alternative hospitalization coverage or join Rush's Blue Cross group plan. Proof of alternative hospitalization consists of presenting a current hospitalization policy or member identification cards.

If during the school year, a student wants to drop his/her Rush Blue Cross coverage, he/she must first show proof of similar coverage elsewhere before the University's coverage will be dropped either at the beginning or end of the month.

Outpatient Primary Care. All registered degree-seeking students must provide proof of outpatient primary care insurance coverage or they must be enrolled in the student plan at Rush. The plan currently available is the RushANCHOR Health Maintenance Organization.

RushANCHOR offers outpatient primary care aimed at the prevention of illness, maintenance of good health, and early detection and treatment of disease. When illness does occur, comprehensive care is provided through RushANCHOR's group of primary care physicians and specialists. RushANCHOR's benefits cover most physician and related fees including up to 20 outpatient mental health visits per calendar year for short-term evaluation and crisis intervention. A co-pay benefit for prescriptions is included. Coverage does not begin until an enrollment form is properly filled out.

As with Blue Cross, fall quarter registration is the annual RushANCHOR enrollment time at which students can add a spouse or child to their policy. The only other time additions to one's coverage can be made is within 30 days of the date of marriage or birth of a child.

1993-94 Rates for RushANCHOR

Coverage	Per Quarter
Single	\$177
Couple	\$351
Family	\$489

Students may continue the plan for an additional quarter when they are not enrolled such a summer quarter or the quarter after graduation.

Currently, RushANCHOR has 17 offices throughout the Chicago area with Saturday hours and some evening hours. When a student first joins, he/she selects a personal physician from among the RushANCHOR staff, as well as the office location he/she thinks would be most convenient.

Normally, the central office located in the 1700 Van Buren building on the main campus will be most convenient.

Returning students who were on Rush's insurance plans in the prior quarter will be dropped if they are not registered by the second week of classes. It is the student's responsibility to reapply for the insurance once he/she is registered.



FINANCIAL AID

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Financial Aid Process

Financial aid information is mailed to all newly accepted students of Rush University in the January preceeding the academic period of enrollment. The *Financial Aid Handbook* will contain specific financial aid policy and procedures. In addition a need analysis form will be included, which must be completed prior to awarding of federal, state or institutional funds. The priority deadline for submission of materials is May 1st. Students must be enrolled at least half-time to receive financial aid. (Half-time is 6 hours or more per quarter for all programs except graduate nursing which must be enrolled 5 hours or more per quarter). However, there are limited funds for students enrolled less than half-time. To receive assistance, all appropriate forms and materials must be on file.

Graduate and professional students should expect to receive the majority of assistance in the form of loans. Because of the limited institutional resources, financial aid awards may contain loans that accrue interest while the student is in school. Scholarship assistance is available, however, the funds are limited and the student must provide parent data and meet the institutional criteria for eligibility.

Undergraduate students who have not received a prior undergraduate degree are more likely to receive grant assistance through federal and state programs based on need. Undergraduate students obtaining a second degree must also provide parent data for scholarships and loans from the institution.

Employment is possible in a number of university areas, as well as in other departments of Rush-Presbyterian-St. Luke's Medical Center. Depending on a student's academic program, employment may be awarded as part of the financial aid package. It is the student's responsibility to obtain employment. The Office of Financial Aid maintains a job board as well as publishing new positions in the Rush Reporter, a monthly publication for students.

A total of \$15.0 million in loans, scholarships and employment from federal, state and institutional financial aid programs was awarded to Rush University students in 1992-93.

Financial Aid Determination

The financial aid programs at Rush University are provided to assist students who cannot otherwise afford to pay the full cost of education through their personal or family resources.

In general, financial need is the basic criterion for the awarding of funds by Rush University. Accordingly, students and their families will be expected to contribute toward educational expenses to the fullest extent possible. The level of the expected contributions is determined by using a standard set of criteria to analyze financial information provided by the students and their families.

The Office of Student Financial Aid staff is available to consult with students and parents on all matters regarding the financing of a Rush University education. Students and parents are welcomed and encouraged to make use of these services.

Financial Aid Awards

After evaluating the personal and family resources available to the student and taking into consideration awards from external sources, the Office of Student Financial Aid will award funds under the control of the University to students who have remaining unmet need. In varying quantities, a financial aid award may include scholarships/grants, loans, and employment. In order to distribute the available funds in the most equitable manner, the Office of Student Financial Aid establishes a formula that designates the sequence in which funds are awarded to students and the maximum amount awarded under each program. The formula provides for a certain amount of loans and sometimes employment, before students are given consideration for scholarships. These formulas are applied consistently during any given year among all students at a given class level in a given college, as long as funds are available. Due to differences in the availability of funds from year to year and changes in eligibility requirements, the formulas are adjusted annually.

Satisfactory Academic Progress

In order to receive financial assistance from federal Title IV aid programs (Federal Stafford Student Loan, Federal Supplemental Educational Opportunity Grant, and Federal College Work Study), the student must be making satisfactory academic progress. This federal requirement is contained in section 497(e) of the Higher Education Act of 1965, as amended, and is meant to ensure that only those students who meet progress standards toward their degree objectives continue to receive federal financial assistance.

Rush University's policy regarding satisfactory academic progress follows. This policy is distinct from the academic policies of each program published elsewhere in this bulletin.

The maximum length of time for a Rush University student to complete degree requirements will be the length of time normally required for a student continuously enrolled on a

half-time basis to complete a specific program. Thus, students would not be eligible for federal assistance if enrolled for more than four years in a program that is normally completed in two years. Likewise, students would lose financial aid eligibility if enrolled for more than eight years in a program normally completed in four years. Students attending Rush University on a part-time basis must complete a minimum number of hours each year to determine eligibility for continued federal assistance. Further information on eligibility is available in the Office of Student Financial Aid.

Students who are denied financial assistance due to failure to make satisfactory academic progress may appeal to the director of their program. The director may reinstate the student's satisfactory academic standing by providing to the Office of Student Financial Aid a written statement explaining how the student will be making progress toward the degree.

Institutional Scholarship and Loan Funds

Listed below are the organizations and named endowments that provide scholarship assistance to Rush University students.

Rush-Presbyterian-St. Luke's Medical Center
Nurses Alumni Association
Orpheus William Barlow, M.D.
Broda O. Barnes, M.D.
Alexander Brunschwig, M.D.
Carlson-Luckhart
Catharine and R. Winfield Ellis-Philip N. Jones
Faculty Guild
Clark W. Finnerud, M.D.
Golden Lamp Society
Eunice Goebel Greeley
Jules and Eleanor Green
Florence D. Hagenah
Drs. Jones/Thompson/Ramsey/Kehoe
Philip N. Jones, M.D.
George M. Katzman, M.D.
John L. and Helen Kellogg Foundation
Earl Leimbacher, M.D.
Foster G. McGaw
Muehrcke Family Foundation
Joseph and Wendy Olk Scholarship
Pedro Poma, M.D. Scholarship
Robert Ryan, Jr., M.D.
Sciarretta Scholarship
Elizabeth Douglas Shorey
Emily Birnie Smith
Charles H. Solomon, M.D.
C. M. Swale
Homer Thomas Trust
A. Thompson, M.D. - M. Friedman
Endowed Scholarship
Washington Square Foundation
Rush-Presbyterian-St. Luke's Medical
Center Woman's Board

In addition, Rush University has loan funds available through resources provided by various donors and named loan programs.

Abbott Laboratories
Carl O. Almquist, M.D.
Aileen S. Andrew Foundation
Irving E. Beneveniste
M. Irene Cavanaugh
Charity Hospital Association
Henry H. Everett, M.D.
Donald W. Fergusson
Fishkin Memorial Loan
George Guibor, M.D.
Illinois State Medical Society
John Jacques, M.D.,
and Lawrence Jacques, M.D.
Ruth E. Johnsen Memorial Fund
Krehbiel Medical Student Loan
Grace M. Marshall Educational Foundation
Rush-Presbyterian-St. Luke's Medical
Center Medical Staff
Dr. David Monash
Joseph J. Muenster, M.D.
Anne M. and Paul J. Patchen, M.D., Loan
Frederick Henry Prince
Henry Russe/Alumni Assistance Fund
Heyworth and Catherine Sanford
Rev. Canon Savage Memorial Loan
Simon M. Shubitz, M.D.
Searle Scholars Program
Procto C. Waldo
Jane Wheeler Warren
Vivian Weil
Rush-Presbyterian-St. Luke's Medical
Center Woman's Board

RUSH MEDICAL COLLEGE



*Erich E. Brueschke, M.D.
Acting Dean, Rush Medical College
Acting Vice President, Medical Affairs*

“At Rush learning is an active process in which each student is given opportunities to achieve the highest potential. The interaction between student and faculty member mirrors the interaction between patient and physician: an open dialogue and mutual concern for problems. A Rush medical education is the first step in a lifetime pursuit of knowledge and achievement of the highest quality patient care.”

Rush Medical College

Philosophy

The process of becoming a physician is unique for each student who enters Rush. Each brings to his/her medical school experience a distinct educational, psychological and social background. As students define career goals, each develops personal ways of coping with the demands imposed by the physician's role. The Rush Medical College curriculum encourages pursuit of individual interests by emphasizing a solid foundation in the basic sciences and by offering a wide range of elective opportunities in the Medical Center and in a network of affiliated and associated hospitals. Throughout the program, students are encouraged to develop habits of self-education and enthusiasm for the lifelong study of medicine according to specific interests and objectives. Upon matriculation, students are assigned academic advisors whose primary responsibilities are to provide guidance and serve as resources for students as they define professional goals, select courses, and deal with a variety of issues during their progress through medical school.

Long after students have taken their last medical school examinations, the sense of responsibility for the welfare of their patients remains the most important stimulus to maintaining the highest level of professional performance. The Rush faculty seeks to provide educational opportunities and to create an environment that will foster the ability to meet these responsibilities with competence and compassion.

Admission Requirements

Selection Process. Rush Medical College is strongly committed to the selection of individuals who will become vital members of the medical community as students, practitioners, educators, and researchers. Throughout the curriculum, emphasis is placed on the preparation of physicians who will function chiefly as medical practitioners and who will be committed to the delivery of quality health care to a variety of populations, including those that are now underserved.

Because Rush seeks to train physicians who will be committed to meeting society's health care needs, the Committee on Admissions seeks excellence in academic achievement and in noncognitive factors such as character, goals, personality, accomplishments, and experience.

High scholastic achievement is only a partial qualification for acceptance. The Committee on Admissions looks for individuals who exhibit social and intellectual maturity, personal integrity, motivation and concern. Rush also has technical standards for admission (available on request). Strong preference for admission is given to residents of Illinois.

Admission to Rush Medical College depends upon satisfactory completion of a minimum of 90 semester hours (135 quarter hours) of undergraduate study before matriculation. Applicants must also sit for the revised Medical College Admission Test (MCAT), which was given for the first time in April, 1991.

Rush requires all entering students to have successfully completed at least eight semester hours of physics; eight semester hours of biology, with emphasis in zoology; eight semester hours of inorganic chemistry; and eight semester hours of organic chemistry. In lieu of eight semester hours of organic chemistry, students may take four semester hours of organic chemistry and four semester hours of biochemistry. Survey courses in the premedical sciences will not fulfill these requirements. For students in special programs, exceptions to these requirements may be made on an individual basis. Courses in mathematics, social sciences, and English are strongly recommended. The committee suggests that comprehensive courses be selected that include study in the following areas: biology - molecular, cellular, developmental, and population; inorganic chemistry - properties of the elements, states of matter, chemical reaction, and aqueous solutions; organic chemistry - stereochemistry, covalent bonding, hydrocarbons, and organic compounds; physics - mechanics, electricity, wave characteristics, thermodynamics, nuclear structure, and optics.

Because the required courses provide the foundation upon which modern biological and medical sciences are built, the committee gives special attention to competence in these areas. The committee requires that all of the course work submitted in fulfillment of specific admissions requirements must be evaluated on the basis of a traditional grading system. Such a system must employ a range of numbers or letters to indicate the comparative level of performance. If the applicant has received a grade of pass/credit for any courses on the required list, he/she must have the instructor

supply, in writing, a statement evaluating the student's performance in that course. Applicants are advised to pursue subjects beyond the stated minimums if they have not done excellent work in the required courses.

Applicants who will have successfully completed three years of college consisting of a minimum of 90 semester hours or 135 quarter hours, who have no baccalaureate degree but otherwise meet the requirements, will be considered.

Concurrent M.D./Ph.D. Program

Rush University offers students the opportunity for studies that lead to both M.D. and Ph.D. degrees. These programs are particularly suited for students who aspire to careers in academic medicine and research. They enable students to obtain intensive training in specialized areas of the medical sciences while completing their medical studies.

The curricula for students in a combined M.D./Ph.D. program vary widely depending on the individual's previous education, scope of scientific study, and personal interests. Students in concurrent programs must meet the full conditions and requirements of The Graduate College and Rush Medical College. However, course work leading to one degree may be acceptable as partial credit toward the formal requirements of the other degree. A properly coordinated program may afford a significant economy of time in completing studies toward both M.D. and Ph.D. degrees.

A student who enters Rush University with concurrent enrollment in a graduate program and the medical college will typically complete two years of basic science components of the medical college curriculum before becoming fully involved with requirements of the graduate program. Upon completion of the requirements for the Ph.D. degree, the student will return for the clinical portion of the medical program. Alternatives to this schedule are possible to enable students to develop programs that will most effectively satisfy their career objectives.

Ph.D. programs are offered in The Graduate College of Rush University in the following areas: anatomical sciences, biochemistry, immunology, medical physics, neurosciences, pharmacology, and physiology.

Curriculum

Organization. The four-year Rush curriculum provides an appropriate background for individuals with a diversity of professional career goals. The curriculum is based on establishing a solid foundation in the basic sciences and clinical

medicine through a core of required preclinical and clinical courses. In addition, there is ample elective time for students to pursue individual interests.

First Year--Traditional Curriculum. The primary objective of the first year is to provide students with exposure to the vocabulary and the fundamental concepts upon which the clinical sciences are based. The first year is comprised of three quarters of basic science material organized by discipline, that emphasize the structure, function, and behavior of the normal person. The following courses have been designated for each of the three quarters of the first year at the Medical Center.

First Year Traditional Curriculum

Fall Courses		Hours
ANA 471	Human Anatomy I	109
ANA 451	Histology	84
BCH 471	BiochemistryI	65
PHY 451	Physiology I	64
		322
Winter courses		
ANA 472	Human Anatomy II	83
BHV 451	Fund. of Behavior	22
BHV 452	Ethics & Law in Medicine	20
BCH 472	Biochemistry II	50
PHY 452	Physiology II	58
		233
Spring courses		
BHV 453	Behav'r in the Life Cycle (includes 1 minicourse)	28
IMM 501	Immunology	53
MIC 451	Microbiology Concepts	58
NEU 451	Neurobiology	81
PVM 511	Preventive Medicine I	28
		248
Total Hours in First Year		803

Second Year--Traditional Curriculum. During the second year, students are concerned with the study of the causes and effects of disease and with therapeutics. Students initiate their work with patients in programs that emphasize interviewing, history taking, and the physical examination.

Second Year Traditional Curriculum

Fall Courses		Hours
CCS 501	Clin. Concepts & Skills I	30
MED 501	Clin. Pathophysiology I	60
PHR 501	Medical Pharmacology I	47
PSY 501	Intro. to Psychopathology	33
PTH 501	Pathology I	127
PVM 512	Preventive Medicine II	16
		<hr/> 313
Winter courses		
BHV 543	Observation & Communication	18
CCS 502	Clin. Concepts & Skills II	78
MED 502	Clin. Pathophysiology II	79
PHR 502	Medical Pharmacology II	29
PTH 502	Pathology II	69
PVM 513	Preventive Medicine III	8
		<hr/> 281
Spring courses		
CCS 503	Clin. Concepts & Skills III	28
MED 503	Clin. Pathophysiology III	32
PHR 503	Medical Pharmacology III	23
PTH 503	Pathology III	59
		<hr/> 122
Total Hours in Second Year		716

First Year Alternative Curriculum

Fall courses	
ALT 451	Cellular & Molecular Biology
ALT 464	Behavioral Science I
ALT 511	Introduction to Patient I
Winter courses	
ALT 452	Anatomical Sciences
ALT 465	Behavioral Science II
ALT 512	Introduction to Patient II
Spring courses	
ALT 453	Physiology & Intro. to Pharmacology
ALT 466	Behavioral Science III
ALT 471	Epidemiology
ALT 513	Introduction to Patient III

Second Year Alternative Curriculum

Fall courses	
ALT 514	Introduction to Patient IV
ALT 531	Neurosciences
ALT 540	General Pathology
Winter courses	
ALT 515	Introduction to Patient V
ALT 532	Psychopathology
ALT 541	Pathology, Pathophysiology, and Pharmacology I
Spring courses	
ALT 516	Introduction to Patient VI
ALT 542	Pathology, Pathophysiology, and Pharmacology II

Alternative Curriculum for the First and Second Years. Rush Medical College has established an innovative preclinical program for approximately one fifth of each entering class. This alternative curriculum provides beginning medical students more experience with clinical problems, emphasizes personal responsibility for learning and fosters the development of interpersonal skills. The program involves individual and group assignments.

The content for the two-year program is equivalent to that offered in the traditional curriculum, but the learning format is quite different. Each student is provided with specially designed "learning guidebooks" for each unit in the curriculum. The guidebooks will outline the basic science content to be learned, illustrate relevant problem-solving approaches and contain appropriate reference material and learning exercises.

Students are organized into study groups with six students in each group. Each group will meet formally twice a week for half a day with specially trained clinicians who will facilitate student analysis of clinical problems and guide

the students in addressing other learning objectives of the small group sessions. The teaching program does not include formally scheduled lectures. However, faculty from each of the basic sciences are available to answer questions and otherwise discuss the subject matter. Access to laboratories and tutorials for specific objectives in the preclinical curriculum is also included. Learning examinations are provided for use at the student's discretion. The examinations used in the alternative curriculum are consistent with the goals of the program and

include integration of the basic science disciplines with clinical practice and the enhancement of problem-solving skills.

While the faculty believes that all students can benefit from this learning format, the program should be of special interest to students who prefer self-initiated, active responsibility for learning, profit from the give and take of many small group discussions, and enjoy problem solving. Students who elect to be part of the alternative curriculum will remain in the program for the first two years of medical school.

All students admitted to Rush Medical College are eligible for participation in the alternative curriculum. Since positions in the alternative program are limited, it is anticipated that not all interested students will be offered a position in the program. Failure to gain admission to the alternative program will in no way jeopardize a student's status in the traditional curriculum. Students who wish to be considered for the program may apply any time during the admissions process.

Third and Fourth Years. The curricula of the third and fourth years provide students with training in clinical skills, diagnosis, and patient management in a variety of patient care settings.

The clinical curriculum includes required core clerkships in family medicine, internal medicine, neurology, pediatrics, psychiatry, obstetrics/ gynecology, surgery, and a required senior subinternship in medicine, family practice, or pediatrics totaling 60 weeks. In addition, 18 weeks of elective study in areas of special interest to each student is also required.

With few exceptions, the required core clerkships are taken at Rush-Presbyterian-St. Luke's Medical Center, Christ Hospital and Medical Center, or or another Rush network institution. Eight of the 18 weeks of required elective work must be carried out at Rush-Presbyterian-St. Luke's Medical Center or in a Rush-sponsored elective at a network institution. Up to 10 weeks of additional elective study may be carried out at other approved institutions.

Core clerkships in family medicine, internal medicine, pediatrics, obstetrics/gynecology, psychiatry, and surgery are completed during the third year. Senior year core clerkships include neurology, senior surgery and a subinternship in internal medicine, family medicine, or pediatrics.

Though scheduling of other required core clerkships is somewhat flexible, students are encouraged to complete these clerkships early in order to make better use of elective options in the fourth year. Students participate in assignment of required core clerkships although the final decision concerning core and elective clerkship rotations rests with the office of the dean.

Academic Progression. Evaluation of progress at the medical college is an important part of the learning process. Course examinations are aimed at allowing both the students and the faculty to assess progress toward defined learning goals. The final result of evaluation in course work is recorded as honors, pass, or fail. At the end of each quarter or clinical period, evaluations are submitted to the office of the dean.

The Committee on Student Evaluation and Promotion (COSEP) is a standing committee of Rush Medical College. The committee determines when students have satisfactorily completed requirements for promotion and may require additional study by students who have not satisfactorily completed aspects of the medical college curriculum. It also recommends candidates for the degree of doctor of medicine to the Faculty Council and accepts the responsibility of recommending to the Faculty Council the dismissal of any student whose academic performance, including noncognitive as well as cognitive aspects, is unacceptable in the judgment of the committee.

United States Medical Licensing Exam/ National Board of Medical Examiners (USMLE/NBME) subtests are occasionally used by departments to evaluate student knowledge. Scores from these examinations are kept confidential and are not available to any other institution or agency without the prior written permission of the student. Students may review their complete academic record in the office of clinical curriculum on Tuesday through Friday afternoons or by appointment.

Rush uses a system of student anonymity for all written examinations. Performance in courses is known only to the student, his/her academic advisor, the course director for each course, and appropriate members of the Office of the Dean, provided that a minimum passing level of achievement has been demonstrated. Otherwise, the information is also presented to COSEP.

Ratings by clinical instructors and, in most instances, oral and written examinations form the basis of evaluations of student performance in clerkships and, therefore, also the basis of recommendations for residencies. At the time of application for postgraduate training, a letter of evaluation is written by the office of the dean with input from the student's academic advisor. Prior to the composition of this letter, an individual conference is held with the student, and all pertinent factors for the letter of evaluation are assessed.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. Rush Medical College assigns no credit hour value to its courses. Medical students are enrolled full time even when carrying a reduced course load. Additionally, the clinical portion of the curriculum deviates from the quarter system by specifying the dates and number of weeks of full-time study spent in each area.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. Information that is posted on the transcript is the course prefix and number, title, and a grade of "K". A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination.

Academic Difficulty. The following are policies concerning students in academic difficulty:

Students in Academic Difficulty. Course directors will, at the earliest possible time, notify the Office of the Dean of the college of any students having academic difficulty. The office of medical student programs will work with such students, their academic advisors, and with course directors to clarify the nature of the problem and to seek appropriate solutions. Students in academic difficulty should establish contact with the course director, their academic advisors, and appropriate member of the Office of the Dean to explore the factors relating to the student's academic difficulty.

Academic Probation. A student with significant academic deficiencies as determined by COSEP shall be considered on academic probation. Students placed on academic probation are thereby informed that there is serious concern about their academic performance and that they are subject to dismissal from the college should their unsatisfactory academic performance continue. Students shall be notified in writing why they have been placed on probation and what requirements must be met to be removed from probationary status. Students on probation may not register and receive credit toward the M.D. degree for courses (including clerkships) at other institutions without the consent of the Office of the Dean.

Automatic Probation. A student who has outstanding failures in courses scheduled for a total of 90 or more contact hours, who has a

failure in a single required clerkship or who does not pass the United States Medical Licensing Examination (USMLE), Step I by November of the third year shall automatically be placed on academic probation.

Probation by COSEP. COSEP may place on academic probation any medical student who demonstrates deficiencies that COSEP, in the reasonable exercise of its discretion, determines to be significant.

Removal from Probation. A student shall remain on academic probation until he/she has made up all academic deficiencies and has met any other requirements established by COSEP for removal from probation.

Changes in Student Status. The following policies apply to students who are changing their status:

Scheduling First-Year Studies Over Two Years. Prior to the start of the spring quarter of the first year, a student may petition COSEP for permission to complete the requirements of the first year over a two-year period. A proposed schedule of courses, developed in consultation with a member of the Office of Medical Student Programs, will be presented to COSEP as part of the student's petition. COSEP shall decide upon such petition and advise the student in writing of its decision.

Leave of Absence. The associate dean for medical student programs will decide upon each request for leave of absence and will determine the duration of the leave and the conditions, if any, for resuming status as a full- or part-time student. A student may not go on a leave of absence without first stating in writing to the dean his/her intent to return to the college to complete the requirements for the M.D. degree.

The dean will consult with COSEP insofar as possible before approving a leave of absence for a student with academic deficiencies. (See Academic Information section for an additional requirement.)

Withdrawal from the University. Withdrawal is the voluntary termination of enrollment by a student. A student who withdraws and subsequently seeks reinstatement must submit a written petition for reinstatement to the Committee on Admissions of the college, if withdrawal took place before the completion of the student's first quarter of enrollment. If the student withdrew subsequent to the first quarter of enrollment, the student must submit a written petition for reinstatement to be reviewed by COSEP. Recommendations by COSEP are then sent to the Dean.

A student who fails to register and enroll in courses according to the policies of the college will be considered to have withdrawn. A student

withdrawing under this provision may submit a written petition for reinstatement to the dean. The dean shall determine whether special circumstances existed that justified the student's failure to register or whether the student's petition should be forwarded to the appropriate faculty committee as set forth in the above paragraph.

Suspension. Suspension is the administrative termination of the enrollment of a student for a specific period of time.

Dismissal. Dismissal is permanent administrative termination of the enrollment of a student.

Grounds for Dismissal. The following shall constitute grounds for academic dismissal from the college:

- Outstanding failures, in any combination, in the first or second years in courses whose total of scheduled instructional hours equals or is greater than 35 percent of the total scheduled instructional hours for the entire first or second year. (An outstanding failure is a failure which remains after a student has not passed a course's single make-up examination or which remains because the student did not qualify to take the make-up examination.)
- A second failure in a given required core clerkship.
- A failure in a second required core clerkship even though one may have previously been made up.
- Unsatisfactory completion of a remedial program by a student on academic probation where satisfactory completion of such program was a requirement for continued enrollment.
- a determination by COSEP that a student is not fit to practice medicine. Fitness for the practice of medicine includes demonstrated ability to be a competent and effective physician and performance which reflects good moral character, a sense of responsibility, sound judgment, and the ability to master and properly apply subject matter.
- Failure after three attempts to pass the Step I of the United States Medical Licensure Examination shall constitute grounds for automatic dismissal.

Procedure for Dismissal When a student is subject to dismissal the following procedures will be followed.

COSEP Action. COSEP shall review the performance of a student in accordance with these rules and, where appropriate, may recommend the dismissal of a student. The chairperson of COSEP shall notify the student who is subject to a COSEP recommendation for dismissal of COSEP's action and of the student's opportunity to meet with COSEP before it submits its recommendation to the Faculty Council. If the student fails to request a meeting with COSEP within 14 days from his/her receipt of the chairperson's notice, the student shall have waived any right to such meeting. The chairperson of COSEP shall determine the procedures for conducting the meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney.

After meeting with the student, if such meeting is requested in a proper and timely manner, COSEP shall submit its recommendation in writing to the Faculty Council.

Faculty Council Action. Within a reasonable time following its receipt of COSEP's recommendation, the Faculty Council shall consider the recommendation. The vice chairperson of the council shall chair meetings of the council when the council is considering recommendations for the dismissal of a student and shall invite the student and the student's faculty advisor to attend the Faculty Council meeting during its consideration of the COSEP recommendation affecting the student. The Faculty Council may in its sole discretion conduct a part of its deliberations concerning such recommendation outside the presence of the student and his/her advisor. The vice chairperson of the Faculty Council shall determine the procedures for conducting its meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney. The Faculty Council shall submit its written recommendation together with COSEP's recommendation to the dean.

Dean's Action. The dean shall consider the recommendations of COSEP and the Faculty Council and shall make the final determination concerning the affected student's status in the college. The dean shall notify the student, COSEP, and the Faculty Council of his/her decision in the matter.

Examinations in a Course. The attainment of course goals by students should be evaluated by written examinations and/or other appropriate means. The course director will determine the

number and format of examinations. Courses with more than 50 hours of scheduled instruction per quarter should include more than one examination or other evaluative exercise per quarter. Students should refer to the course director and course materials concerning those requirements (e.g., attendance).

Course Grades. All preclinical courses in the traditional curriculum use a uniform minimum pass level: a score of 70 percent or 1.5 standard deviations below the class mean, whichever is lower with the additional provision that any student with a score of less than 55 percent will be considered to have failed regardless of the mean pass level determined by the curve. A grade of "honors" may be given at the discretion of the course director to students whose performance falls within the top 15 percent of the class.

Examination Period. In the medical college, no preclinical classes are scheduled during the examination period; examinations in preclinical courses are scheduled by the assistant dean for preclinical curriculum.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work. Upon completion of the unmet course requirements this grade will be replaced by the new grade.

In-Course Make-up Examinations. Students may be guided by the following policies concerning in-course make-up examinations:

Excused Absences. Students with valid reasons may request permission from the office of medical student programs to reschedule an examination. The decision to grant such permission will be made by the dean's office in consultation with the course director.

Unexcused Absences. A course director is not obligated to provide a make-up examination for an unexcused absence from an examination.

Make-up Examinations for Failed Courses in First and Second Years. A student receiving a failing grade at the completion of a course shall be given an opportunity to take a single make-up examination as a means of demonstrating his/her proficiency in the subject to rectify his/her failure. However, a student who fails a course with a score more than two standard deviations below the class mean will not be offered such a make-up examination. Further, a student may take

make-up examinations in no more than two courses in any one quarter. If more than two courses are failed, the student, in consultation with his/her academic advisor, may choose which examinations to take. Make-up exams will be completed no later than the first week of the quarter following a course failure. Format, content, and passing grade for make-up exams will be determined by the course director. Make-up examinations will be scheduled by the dean's office in consultation with the appropriate course directors.

Status of Students with Course Failures.

COSEP shall review the status of students who fail make-up examinations or who have outstanding course failures for which they did not qualify to take make-up examinations and shall consider options for remedial work. COSEP shall review the status of all students who fail a clinical clerkship.

At appropriate times during the academic year, as determined by the chairperson of COSEP in consultation with the associate dean for medical student programs, COSEP will review the progress of each student who has failed a course. After such review, COSEP either shall establish requirements which a student must meet in order to resolve his/her deficiencies in academic performance or shall recommend dismissal.

No student shall be promoted from the second year to the third year until he/she satisfactorily completes all requirements of the first and second years. COSEP, in its discretion, may schedule second-year courses concurrently with make-up work for unsatisfactory first-year work, as it may consider appropriate for an individual student.

Remedial Programs for Students Failing Courses. Guidelines for remedial programs are as follows:

First and Second Years. COSEP shall establish requirements for remedial work for students with one or more outstanding course failures in the first or second year. Remedial work requirements shall be reasonably related to the seriousness of the student's deficiencies. Such requirements may include, but need not be limited to the following: Summer tutorial study with re-examination; participation in an approved summer course; retaking failed courses during the next academic year; and retaking all courses including those satisfactorily passed.

In developing requirements, COSEP will consider the needs of the individual student and will endeavor to develop a program that, if successfully completed, will strengthen the student's prospects for successfully completing

the remainder of his/her college program. Students who have no outstanding failures at the end of an academic year, but who have had to take make-up examinations in courses whose total of scheduled instructional hours equals or exceeds 30 percent of the complete program of instruction for that entire academic year may be placed on academic probation, in which situation COSEP will establish the requirements which students must meet before they are able to proceed to the studies of the next academic year.

Third and Fourth Years. A failure in a required core clerkship must be made up in a manner prescribed by the course director in consultation with the assistant dean for clinical curriculum, approved by COSEP, and consistent with the reasons for the student's failure. Should a student be required to repeat all or part of the clinical rotation, effort should be made to have the student work with different supervisory and instructional staff. A student required to repeat clinical work in a required core clerkship should complete the failed course prior to beginning another core rotation. A student failing an elective clerkship must either repeat the elective or, with the approval of the dean's office, complete an alternative elective.

Failure to Pass Step I of United States Medical Licensure Examination. All students must take Step I of the USMLE in June at the completion of their second year. Permission to defer taking this examination must be granted by the office of medical student programs. Students who do not pass USMLE Step I by November of their third year will be placed on probation and reviewed by COSEP. COSEP may require the student to defer part or all of his/her clinical program to provide sufficient time for preparation. Students must take USMLE Step I three of the first four times it is offered to the class. Students who fail the examination three times will be automatically dismissed.

Graduation Requirements. The following are prerequisites to the granting of the degree of doctor of medicine by Rush University:

- The level of achievement required by the faculty for the degree of doctor of medicine must be attained in a minimum of 35 months.
- Credit toward the M.D. degree may be granted to a student by the Office of the Dean for appropriate course work accomplished prior to matriculation at Rush Medical College.
- A minimum of 78 weeks of instruction at Rush Medical College is required for students entering at the third-year level from

other medical schools. The Committee on Student Evaluation and Promotion may recommend additional weeks of instruction depending upon the progress made by any Rush Medical College student.

- Each student's progress in each year of the Rush Medical College curriculum will be evaluated by the Committee on Student Evaluation and Promotion, and additional study may be required in any year for students with academic difficulty.
- Students must pass all courses in the preclinical years before entering the clinical phase of the curriculum.
- Prior to graduation, students are required to pass Part I and complete Part II of the examinations offered by the National Board of Medical Examiners to be called Step I and Step II of the U.S. Medical Licensing Examination after May 1992.
- Students must pass all required clerkships and Step I of the U.S. Medical Licensing Examination and be scheduled for completion of all elective clerkship requirements by December 31 of the current year in order to participate in commencement ceremonies.

Policies Concerning Student Misconduct

The Committee on Student Judiciary Review is charged with investigating and adjudicating charges of student misconduct of a nonacademic nature, including but not limited to violation of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession; or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the medical profession.

All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs. If in the opinion of the associate dean, the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the associate dean may at any time exercise the right to have the charges heard by the Committee on Student Judiciary Review. In every case, the

associate dean will notify the complainant in writing by registered letter within 30 days of receiving the complaint as to whether the matter was resolved without a hearing or whether the matter was referred to the Committee on Student Judiciary Review. If a disposition requires more than 30 days, the associate dean will notify the complainant in writing every 30 days until the matter has reached a disposition.

If the complainant is dissatisfied with the resolution of a matter that has not been referred to the Committee on Student Judiciary Review for a hearing, he/she may request that the decision be reviewed by an ad hoc committee consisting of two faculty members and one student appointed by the dean. In order for a complainant to initiate a review of the associate dean's decision, the complainant must notify the associate dean in writing that he/she seeks a review, and the notification must reach the associate dean within 15 working days from the time the complainant received written notification of the associate dean's disposition.

Upon a timely request, the dean will constitute the Ad Hoc Committee within two weeks. Members of the Ad Hoc Committee may not simultaneously serve as members of the committee on Student Judiciary Review. The Ad Hoc Committee will convene to accept testimony (in person or in writing) from the complainant, the student charged, and the associate dean. The ad hoc Committee will only accept evidence that addresses the issue of whether the associate dean failed to consider certain relevant facts that would warrant a full hearing. In the case of such a review, the Ad Hoc Committee may reach one of two decisions by a simple majority vote: 1) endorsement of the associate dean's prior disposition or the matter or 2) a decision ordering that the Committee on Student Judiciary Review hear the matter in a full hearing.

The decision of the Ad Hoc Committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student, the senior representative body of the college, and the dean. The senior representative body shall consider the committee's determination and any written exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the senior representative body's recommendation shall be transmitted to the Committee on Student Judiciary Review, the student and the dean. The dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct.

Student Conduct and Academic Honesty

(Please refer to the Rush University policy statement in the General Information section, on page 11-12).

Academic Advisor Program

The Academic Advisor Program consists of specially selected faculty members for each class who provide counseling and guidance for cohorts of approximately fifteen students each throughout the four years of medical school. The advisors are kept informed of current policies, procedures and trends affecting students' participation in both curricular and noncurricular aspects of medical school by the director of the academic advisor program, who is responsible for program planning, coordination, and evaluation. The director is assisted by senior advisors, individuals chosen for their expertise and experience in the Academic Advisor Program. Advisors provide counseling in three interrelated areas: academic (regarding the acquisition of the knowledge and skills for becoming a competent physician), personal (regarding the growth and development of the person), and professional (regarding the selection of a career and graduate training program for which the individual is best suited). Besides assisting each of their advisees through the various phases of medical school, the advisors assist in writing of the dean's letters, which is the summation of the student's progress while at Rush used in applying to graduate medical education (residency training) programs.

Rush Medical College Committees

Committees exist within the structure of Rush Medical College to assure the appropriate involvement of faculty and students in the various activities of the college. Except for the Rush Medical College Student Council, each committee includes representation from both faculty and students.

Faculty Council. The Faculty Council is the senior representative body within Rush Medical College. The membership includes nine professors, three associate professors, three assistant professors, three instructors or assistants, and one student from each class, each chosen by vote of the corresponding constituency.

Committee on Committees. The Committee on Committees has as its primary responsibility the nomination of individuals to serve on the various standing committees of the medical college. Sitting as the Committee on Dialogue, the committee is also responsible for dealing with

grievances presented by members of the Rush Medical College community.

Student Council. The Student Council is the representative government for students of Rush Medical College and consists of six representatives from each of the four classes within the medical school. The council provides a mechanism to facilitate the exchange of information on matters affecting the student body.

The standing committees of Rush Medical College include:

Committee on Academic Freedom. This committee concerns itself with questions of academic freedom. It works closely with the Committee on Dialogue and the Faculty Council in resolving grievances involving questions of academic freedom.

Committee on Admissions. Members of this committee are responsible for recommending to the dean students for admission to the medical college. The duties of the committee members include selecting those applicants who will be interviewed; interviewing candidates; choosing applicants who will be offered acceptances to the medical college; and reviewing criteria applied from medical student admissions to maintain academic excellence.

Committee on Affirmative Action. The Committee on Affirmative Action serves to advise the dean and the faculty regarding policies, procedures, and issues which affect the recruitment, retention, and promotion of minority and women faculty and students in the college. The committee works closely with the equal opportunity coordinator for academic affairs.

Curriculum Committee. The Curriculum Committee is responsible for the design and content of the curriculum. On the basis of its own surveys and the evaluations of the Committee on Educational Appraisal, this committee evaluates the need for and, as deemed appropriate, develops recommendations for curricular modification.

Committee on Educational Appraisal. The Committee on Educational Appraisal is responsible for evaluating the courses of Rush Medical College. The committee administers, with the assistance of each course director, and analyzes course, clerkship, and faculty assessments provided by students. An annual report is produced for each course within the medical college curriculum.

Committee on Educational Resources. The principal function of the Committee on Educational Resources is to evaluate the utilization, organization and effectiveness of the sections of the Center for Educational Resources as they relate to the faculty and students of the medical college.

Committee on Senior Faculty Appointments and Promotions. The function of the Committee on Senior Faculty Appointments and Promotions (COSFAP) is to review recommendations submitted by chairpersons for appointments or promotions of faculty members to academic ranks of indefinite terms in Rush Medical College. Recommendations for appointments or promotions are then submitted to the office of the dean for further action.

Committee on Student Affairs. The Committee on Student Affairs (COSA) is concerned with noncurricular needs of medical students. Its regular responsibilities include an annual evaluation of the effectiveness and adequacy of programs and services available to students, improvement of current programs, and initiation of new activities when their need is recognized. The committee works closely with the University office of student services.

Committee on Student Evaluation and Promotion. The Committee on Student Evaluation and Promotion (COSEP) is responsible for developing policies concerning student status, evaluation and promotion; reviewing the academic performance of medical college students; making recommendations to the Faculty Council and dean concerning promotion, graduation and dismissal of students; and determining requirements for remedial action for students who have failed medical college courses.

Committee on Student Judiciary Review. It is the responsibility of the Committee on Student Judiciary Review to develop and recommend to the Faculty Council policies and procedures which promote the maintenance of ethical and professional standards for Rush Medical College students and to investigate and adjudicate charges of student misconduct of a nonacademic nature including, but not limited to: violations of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms, or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her

profession or other conduct which is inconsistent with generally accepted standards of behavior within an academic community or the medical profession. All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs by students or faculty. The committee shall submit its recommendation to the Faculty Council, which, in turn shall make a recommendation to the dean who will then render a final, nonappealable decision on the charges.

Student Research Opportunities

Students are encouraged to have some research experience while they are in medical school. The opportunities range from laboratory experiences in the biomedical sciences to clinical investigation and field work in epidemiology, preventive medicine, and primary care. Such research can be carried out during summers or during time allotted for elective experiences. The student's academic advisor and the office of medical student programs will assist in arranging for research experiences.

Continuing Medical Education

The office of continuing medical education supports the sponsorship of medical and health professions symposia, workshops, and conferences for practicing professionals. Students may register at reduced rates for some Rush-sponsored programs. The staff provides services to faculty and staff of the University and Medical Center that include consultation in planning meetings, budget preparation and marketing, including strategy and brochure development, printing and advertising. A computerized registration system maintains attendee records, confirmation letters, and attendance lists. For each meeting, the office prepares name tags and certificates of completion.

All programs are supervised by an experienced meeting planner who directs the marketing activities, orders all supplies and audiovisual equipment, and is on site during the program to assure its smooth operation. After the program concludes, the meeting planner prepares a program evaluation, a complete financial report, and detailed marketing and registration summaries.

Information regarding services and future programs can be obtained by calling (312) 942-7119 or 8728.



COLLEGE OF NURSING



*Kathleen Gainor Andreoli, D.S.N.,
The John L. and Helen Kellog Dean,
College of Nursing
Vice President, Nursing Affairs*

"At Rush-Presbyterian-St. Lukes Medical Center nursing sets a national standard for excellence in patient care. This is accomplished through the unique integration of academic functions and health care services resulting in innovative nursing care delivery systems, nationally recognized educational programs culminating in the preparation of clinical nursing scholars in specialized care disciplines, and research programs that contribute to the scientific basis of clinical and administrative practice in nursing."

College of Nursing

Philosophy

Preamble. Rush University College of Nursing is committed to providing excellence in professional education for nurses. The education of students is facilitated by the unification of the academic and clinical practice components of the health care system. This unique integration stimulates excellence in education, practice, scholarly activities, and professional leadership by the faculty and the graduates of the College of Nursing.

Nursing. Nursing is a profession and discipline that generates and uses knowledge to maximize the health of humankind. Through scientific inquiry, knowledge is generated and disseminated to improve practice, enhance education, and influence the organization and delivery of health care. Through the synthesis and application of knowledge, nurses contribute autonomously and collaboratively with other professionals to achieve positive health outcomes. Nursing standards define client outcomes for which nurses are responsible, and the nursing profession's accountability to the public. Nursing services are an essential element across the spectrum of health care, including health promotion and disease prevention, health restoration, and health maintenance. Within an ethical framework nurses demonstrate compassion, advocacy, and cultural sensitivity for individuals and groups.

Health. Human health is a dynamic process, reflecting the interaction of biological, psychological, sociological, and belief systems within internal and external environments. Primary, secondary, and tertiary prevention of health related problems are essential for the optimal functioning of individuals across the life span.

Society. Nurses are prepared to meet and respond to the health and illness needs of society. The changing nature of societal needs requires knowledge and skills enabling effective individual and group interventions. Emphasis is given to special at risk populations with consideration given to diverse characteristics such as culture, race, ethnic groups, gender, age, income, and functional abilities. Whether societal needs are met by the delivery of direct services, or indirect services through participation in the policy process, nursing actions are based on science and research. Central to the health of society is an understanding of world interdependence

Education. Knowledge from the sciences, arts, and humanities is integral to education for professional nursing so that students understand and value the human experience. Nurse educators foster student growth by planning learning experiences in the primary, secondary, and tertiary settings where faculty practice. Scholarly inquiry, clinical judgement, life long learning, and creative leadership are essential for the profession, thus development of these qualities is fostered in students at all program levels. Learning is a shared responsibility between educator and learner. Syntactical learning prepares the nurse to develop individualized care for unique practice situations. Contextual learning promotes the systematic analysis of internal and external conditions influencing the discipline and practice of nursing. Inquiry learning fosters reflection, criticism, independence, and creativity. Through syntax, context, and inquiry students are prepared to meet current and future health care challenges.

Entry and Exit Options

Along with the adoption of a revised philosophy in 1987, the faculty of the College of Nursing approved a curriculum framework which allows multiple entry and exit options for students pursuing professional nursing education. Two new entry options (R.N./M.S. and Graduate Entry Level for students with no previous nursing education) and one new exit option (Doctor of Nursing) were incorporated in the revised curriculum. Previous academic and professional education serve as the foundation for programs of study preparing students for progressive levels of specialization and responsibility as professional nurses.

Exit Points. Four exit options are available to students enrolled in the College of Nursing. Depending on the background of the student, four degree offerings, Bachelor of Science (B.S.), Master of Science (M.S.), Doctor of Nursing (N.D.) and the Doctor of Nursing Science (D.N.Sc.) comprise the exit points in the curriculum continuum. These are the points at which a student may end his/her academic advancement or stop with the option of reentry to continue his/her academic growth in nursing. Movement from one exit level to the next is always contingent upon evidence of academic potential for success at higher levels of study. Academic progression is reviewed regularly and students are advised of the options available to them.

TERMINAL OBJECTIVES FOR GRADUATES

Conceptual Threads	Bachelor of Science	Master of Science
1. Disciplinary knowledge	<p>Synthesize and apply a broad base of knowledge from the humanities and biological and social sciences in clinical nursing practice.</p> <p>Apply selected theories in clinical nursing practice.</p>	<p>Synthesize and apply an in-depth base of knowledge and selected humanities and biological and social sciences in a specialty clinical practice.</p> <p>Apply a variety of theories in clinical nursing practice.</p>
2. Clinical Practice	<p>Function as generalists in clinical nursing practice.</p> <p>Demonstrate clinical judgement in assessment, planning, implementation and evaluation of preventive, therapeutic and rehabilitative health care for individuals, families and communities throughout the life cycle.</p> <p>Determine the need for and utilize a consultant for clinical problem solving.</p>	<p>Function as specialists in nursing practice.</p> <p>Demonstrate clinical judgement in the assessment, planning, implementation and evaluation of patients in a specialty area of practice.</p> <p>Provide leadership in specialty area of practice.</p>
3. Learning/ Teaching	<p>Identify and apply basic concepts and principles of learning and teaching with patients and peers.</p>	<p>Utilize concepts and principles of learning and teaching with patients (individual and group) and peers in a specialty area of practice.</p>
4. Management/ Leadership	<p>Utilize basic concepts of leadership and management including knowledge of internal and external organizational influences on nursing practice.</p> <p>Function collaboratively with other members of the health care team to provide continuity of care.</p>	<p>Analyze the nursing component of health care systems within the context of interacting social, economic and political system.</p> <p>Participate in the change process of health care systems, incorporating knowledge of social and political forces.</p>
5. Research	<p>Apply research findings in clinical practice.</p> <p>Identify clinical problems for continued reasearch.</p>	<p>Analyze, evaluate and apply research findings in the selected field of clinical practice.</p> <p>Participate in clinical research studies.</p>
6. Professionalism	<p>Demonstrate commitment and accountability to health care consumers and to professional standards.</p> <p>Engage in activities that promote individual professional development.</p> <p>Demonstrate an understanding of personal values, attitudes and nursing qualities that form the foundation for professional behavior.</p>	<p>Participate in the development of professional standards for clinical practice.</p> <p>Participate in activities which promote development of the profession.</p> <p>Incorporate professional values in specialty nursing practice.</p>

Bachelor of Science. The objectives of the undergraduate program in nursing are to create a climate of learning for students to grow and develop as competent beginning professional nurses.

Master of Science. The master’s level of the curriculum is designed to prepare graduates to function as beginnnng clinical nurse specialists. These roles require the central focus on clinical practice with a beginning level of knowledge and skill in education, research, administration and consultation.

OF THE COLLEGE OF NURSING

Doctor of Nursing	Doctor of Nursing Science	Conceptual Threads
<p>Use understanding of complex clinical situations to build specialty nursing knowledge.</p> <p>Evaluate usefulness of theories for clinical nursing practice, education and management.</p>	<p>Integrate knowledge from multiple disciplines in providing clinical nursing practice.</p> <p>Test and/or generate concepts, theories and models for clinical nursing practice.</p>	1. Disciplinary knowledge
<p>Function as advanced clinical specialists or nurse practitioners integrating the role of teacher or manager within clinical practice.</p> <p>Demonstrate advanced clinical judgement in assessment, planning, implementation and evaluation of patients in a specialty area of practice.</p> <p>Provide clinical consultation in a specialty area of practice.</p>	<p>Function as clinical nursing scientists.</p> <p>Advance the use of clinical judgement in clinical nursing practice.</p> <p>Provide consultation in the resolution of issues and problems in clinical practice.</p>	2. Clinical Practice
<p>Provide consultation for learning and teaching needs of patients and peers.</p>	<p>Evaluate the application of concepts and principles of learning and teaching within clinical practice, education and management.</p>	3. Learning/ Teaching
<p>Analyze the social, economic and political components of health care systems which affect care planning and delivery.</p> <p>Initiate change and collaborate with others to implement and evaluate health care policies and changes in health care systems.</p>	<p>Systematically evaluate changes in care systems commensurate with current knowledge and future health needs of society.</p> <p>Provide leadership in management and change processes.</p>	4. Management/ Leadership
<p>Initiate clinical research utilization studies.</p> <p>Promote an environment which facilitates the conduct and utilization of clinical research.</p>	<p>Design, conduct, direct, and report clinical research studies.</p>	5. Research
<p>Provide leadership in the development of professional standards for clinical practice.</p> <p>Facilitate the professional growth and development of others.</p> <p>Insure the incorporation of professional values in nursing practice, education, management and research.</p>	<p>Evaluate standards set forth by the profession in the advancement of nursing practice and nursing science.</p> <p>Demonstrate commitment to the advancement of nursing practice and nursing science through the dissemination of knowledge.</p>	6. Professionalism

Doctor of Nursing. The student who completes the prescribed program of study for the N.D. degree is prepared to function as an advanced clinical specialist or nurse practitioner, integrating the role of teacher, consultant and manager of clinical practice. The graduate will also be prepared to initiate clinical research utilization studies and promote an environment which facilitates the conduct and utilization of clinical research.

Doctor of Nursing Science. A graduate of the D.N.Sc. program will have developed competencies as an expert clinical practitioner, the investigative skills of a nurse research, and the leadership skills for developing health policy and changing health care systems.

Entry Points. Several entry points are available, depending on the educational goals and academic background of the student. Students with no formal background in nursing can progress through the highest degree offered or exit at another level. Likewise those with master's level preparation can enter and achieve either of the higher degrees offered. Six entry points are available, depending on the background of the applicant.

1. College student with ninety hours of college credit.
2. R.N. with a minimum of ninety hours of college credit.*
3. College graduate with a baccalaureate degree.
4. R.N. with a baccalaureate degree in a field other than nursing.*
5. R.N. with a baccalaureate degree with an upper division major in nursing.
6. R.N. with a master's degree in nursing.

Applicants from group 1 must apply for the B.S. exit.

Applicants from group 2 may apply to either the baccalaureate exit or for one of the graduate exits. Those not meeting graduate admissions standards may be acceptable for the baccalaureate program.

Applicants from groups 3 through 5 may apply directly for the M.S. degree, the N.D. degree or the D.N.Sc. degree programs.

Applicants from group 6 may apply for the N.D. or D.N.Sc.

Registered Nurse (R.N.) applicants who do not have a B.S.N. must take placement examinations to validate previous nursing course work. See groups indicated with an asterisk (*) above. Information regarding these examinations may be obtained from the Office of College Admissions Services.

Terminal objectives for each of the four degree points are displayed on the previous pages.

Quarters of Entrance. Regular undergraduates and RN/BS Completion students begin in the Fall Quarter. Graduate Entry Level students begin in the Summer Quarter. Students in the Master of Science (M.S.) and Doctor of Nursing (N.D.) begin either in Fall or Spring Quarters with the exception of Anesthesia Nursing students who begin in the Summer. Doctor of Nursing Science students also begin in the Summer Quarter.

Admission

Prelicensure Level (Bachelor of Science).

Students may enter Rush at the junior level after completing a minimum of two years at another accredited college or university. An individual may attend either an approved postsecondary institution of his/her choice or one of 17 colleges and universities affiliated with Rush. Although students from affiliated schools have priority in admission, these students usually comprise approximately 25 percent of the entering class. All other spaces are filled by applicants from nonaffiliated institutions.

Students interested in attending an affiliated school are encouraged to submit applications to the affiliated colleges and universities soon after the beginning of their senior year in high school. Each college has its own entrance requirements. The student's academic progress will be monitored by both Rush and the health careers advisor on the affiliated college campus. Students meeting the objectives of the prehealth curriculum, obtaining the approval of the health careers advisor and filing all required documents, will move to Rush University to pursue the final two years of the program.

Transfer credit is not awarded for required course work in which the student earned less than a C grade. Physical education and technical skill courses are not accepted for transfer credit.

Program Prerequisites. Applicants from groups 1 through 3 must take course work that includes the following:

Natural Sciences #	24 quarter hours minimum
Social Sciences ##	20 quarter hours minimum
Humanities	12 quarter hours minimum
English Composition ###	2 course
Introductory Statistics	1 course

- # Required courses include inorganic and organic chemistry, human anatomy and physiology and microbiology
- ## Recommended courses include psychology, sociology and anthropology. Growth and development is required.
- ### Proficiency at Composition II level

Applicants must submit transcripts of all college work attempted and recommendations from three individuals who know the applicant well. Two recommendations must come from former teachers and one from the applicant's most recent employer, when applicable.

All materials of the application are taken into consideration when evaluating an applicant.

Graduate Nursing Levels of Study. Each applicant to graduate study should have earned a baccalaureate degree with a recognized upper division major. The majority of credit toward the degree should be earned through university level coursework. Previous nursing course work

completed at other schools or at schools not offering an upper division major in nursing must be validated by examinations to assist in the evaluation of previous nursing coursework. Arrangements for these examinations are managed by the Office of Student Support Services.

Programs of study developed by the student and his/her advisor will incorporate previous academic work and the requirements for the exit option selected by the student. Individuals with no previous nursing education will complete prelicensure requirements as part of their graduate studies. Admitted students must begin study in the summer quarter to complete prelicensure level requirements. Progression from one level of graduate study to another requires maintenance of stipulated academic standards.

Applicants to graduate study must submit transcripts of all college work attempted, and Graduate Record Examination (GRE) results. Registered nurses must submit evidence of licensure in at least one state or jurisdiction. All applicants must complete an interview with at least one faculty member and submit recommendations from three persons who can evaluate the individuals potential for success in graduate study. D.N.Sc. applicants must submit at least one recommendation from a person who has completed doctoral studies.

All materials submitted are taken into consideration when evaluating a student. The faculty may recommend an exit option different from the one requested based upon an evaluation of the applicant's potential for success in the curriculum.

International Students. Students from other countries are welcome to apply to both undergraduate and graduate levels of study. Only limited financial aid is available. Successful completion of the Test of English as a Foreign Language (TOEFL) - minimum score of 550 - and Test of Written English (TWE) - minimum score of 5, are required if the major portion of the applicant's prior education has not taken place in an English-speaking school.

Curriculum

Bachelor of Science. The prelicensure curriculum consists of 90 quarter hours of pre-health course work including those program prerequisites listed in the admissions section. The two-year upper division nursing curriculum requires a minimum of 90 quarter hours of upper division study in nursing and related science courses for a total of 180 quarter hours for the bachelor of science degree.

The Graduate Curriculum. The graduate curriculum allows the student to exit with the master of science degree or if accepted for further study, proceed for the N.D. or D.N.Sc. A set of core courses is required for every student at the graduate level with additional hours for each higher degree. Cognate course representing course work from the biological, behavioral and organizational sciences are determined by each degree. Advanced clinical specialty courses are required as determined by an area of concentration.

A minimum of 12 hours of practicum in the area of concentration for the M.S. degree is required plus an additional 8 hours of practicum for the N.D.

Course requirements vary in each area of concentration. The college reserves the right to modify course requirements in consideration of overall curricular goals and design. At least 55 quarter hours of graduate credit or more, depending upon specialization, are required for the M.S. degree. The N.D. degree requires at least 85 hours of postbaccalaureate study and the D.N.Sc. degree requires at least 125 quarter hours of postbaccalaureate study exclusive of the dissertation.

Master of Science. The master of science degree in nursing provides opportunities for focus in clinical specialization. Students declare one of six departments: Community Health, Gerontology, Medical, Maternal Child Health, Psychiatric/ Mental Health, or Surgical Nursing. Specialization is developed with selections of clinical seminars and practica. Numerous options are available for student selection in anesthesia, cardiopulmonary, home health, critical care, gerontological, medical, neurological, obstetrical, oncology, orthopaedics, psychiatric, rehabilitation, surgical, or transplantation nursing.

A dual degree option is available for those desiring advanced preparation in clinical nursing science and the critical management skills of business administration. Graduates earn the M.S. degree from Rush and the Master of Management (M.M.) degree from the J.L. Kellogg Graduate School of Management at Northwestern University.

The master of science degree in nursing requires completion of a minimum of 55 quarter hours of credit (four quarters of full-time study or 8 to 10 quarters of part-time study), exclusive of prerequisites.

Doctor of Nursing. The doctor of nursing degree allows an emphasis on advanced clinical nursing practice. All areas of concentration listed at the M.S. level are available for the N.D. level. Nurse practitioner foci include: community health,

gerontology, neonatal, and pediatric. The primary health care concentration for nurse practitioners is available at the N.D. level.

Students who have completed at least an undergraduate liberal arts degree and qualify for graduate study can complete the requirements for the N.D. degree in 12 to 15 quarters of full-time study (approximately four academic years of enrollment as full-time students). Students with prior nursing education are evaluated individually and are required to complete curriculum requirements not already accomplished in their earlier nursing education.

Doctor of Nursing Science. The research doctoral program leading to the Doctor of Nursing Science (D.N.Sc.) is designed to develop nursing knowledge through the integration of research in advanced clinical practice. Cognate studies, clinical practice and research methodologies are combined for application to diverse and changing health care needs.

The doctoral student and his/her advisor mutually define an individual program that includes an area of clinical nursing for specialization and investigation. The doctoral program will enable the graduate to have the competencies of an expert clinician, the investigative skills of a nurse-researcher and the leadership skills needed for developing health care systems.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Continuous Enrollment. Following matriculation in the College of Nursing, a student must remain enrolled each quarter until all requirements for the degree are met and the degree conferred. Prelicensure students are not required to enroll during the summer quarter. Students enrolling only to complete requirements for a course in which a grade of incomplete (I) was given must register for NUR 999 for zero credits. This course carries the nominal enrollment fee (see Financial Affairs section).

A student in the Summer Doctoral program must be enrolled full-time for three consecutive summers and until the course and cognate courses are completed.

A student who fails to enroll for two consecutive quarters and has not been granted a leave of absence is considered withdrawn (by reason of unexplained nonenrollment) and must apply for readmission into the program.

Preregistration. Following matriculation in the College of Nursing continuing students must

preregister during the official time frame for preregistration as posted by the registrar. Nursing students who register after this time in any quarter will be charged a late preregistration fee (see Financial Affairs section).

Academic Progression. Student progress in the College of Nursing is reviewed and evaluated in several ways. The academic policies established by the faculty are interpreted and applied by the student's academic advisor, Director of Student Support Services and the Progressions Committee. The faculty reserves the right to request the withdrawal of any student whose conduct, physical or mental health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Since much of the work in nursing assumes that students will achieve a progressively higher level of understanding and skill, high academic performance is expected. The individual student is responsible for acquiring knowledge inside and outside of formal classroom and clinical settings.

Baccalaureate Students. Baccalaureate students will be considered in good standing at Rush University unless placed on academic probation. A quarterly and cumulative grade point average (GPA) of 2.0 (A=4.0) must be maintained. A student whose cumulative and/or quarterly GPA falls below 2.0 may enroll for no more than two quarters as a probationary student to attempt to raise his/her cumulative and/or quarterly GPA. (During each interim quarter the student must demonstrate improved academic performance.) If at the end of two quarters the required GPA is not attained, the student will be dismissed. Academic probation is limited to a maximum of two quarters during the entire academic program.

An F or N grade in any course is grounds for dismissal from the program. Permission may be given to retake a course at the discretion of the Progressions Committee. If permission is granted, a failed course must be repeated the first time it is offered following the quarter in which the failure occurred or when space is available. Students are limited to repeating only one clinical course.

Graduate Students. Graduate students who are enrolled in prelicensure course work must maintain a quarterly and cumulative GPA of 3.0 in graduate course work and a GPA of 2.75 in the prelicensure component of the program. If GPA falls below 2.75 the student may apply or be asked to transfer to the baccalaureate exit option.

Students in all graduate programs must maintain a cumulative 3.0 average in graduate

level work in order to remain in good academic standing. A full-time student whose cumulative GPA falls below 3.0 may enroll for one quarter as a probationary student to attempt to raise his/her cumulative GPA. A part-time student may enroll for two quarters as a probationary student. Students are dismissed from the college upon failing to achieve satisfactory academic standing in the required period of time or if placed on probation for a second time.

A student must achieve an A or B grade in all required clinical nursing courses. If less than a B grade is achieved, a student may repeat the one course with the approval of the Progressions Committee, the student's advisor, and the associate dean for education. An F grade in a required clinical nursing course will result in dismissal from the program.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree. Elective credit required at Rush may be fulfilled by upper division courses taken at another institution. Upper division courses must be at the 300 or 400 level, or their equivalent, and academic in nature. For instance, courses in physical education or applied arts are not accepted. A transfer credit approval form must be completed.

Graduate credit earned elsewhere may be applied to the M.S., N.D. and D.N.Sc. degree requirements for Rush subject to the approval of the advisor and the director of curriculum and instruction. Graduate level courses taken at a recognized college or university may be applied to the N.D. or D.N.Sc. degree requirements at Rush, subject to the approval of the advisor and the director of curriculum and instruction. Credits in excess of 55 quarter hours require approval of the director of curriculum and instruction. Before this credit may be approved to meet degree requirements, a Transfer Credit Approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a Transfer Credit Approval form or register for concurrent enrollment. Information regarding these options is available in the Office of the Registrar.

Prelicensure Enrollment in Graduate Courses. With permission, prelicensure students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should any undergraduate student later

apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor or science degree. For instance, if a student actually earned 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the "K" grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's GPA. A fee for the examination is assessed based on the number of credits assigned to the course.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

A grade of incomplete does not reflect upon the quality of the student's performance. Upon the completion of the unmet course requirements this grade will be replaced by the new grade.

Students may request an incomplete from a course director. If the course director grants the privilege of an incomplete, the I grade must be removed as contracted by the course director and the student. The I grade must be removed by the end of the next quarter, or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student.

A student receiving an I grade may proceed for one quarter but may not begin a course for which an incomplete grade is a prerequisite. Further continuation is contingent upon the final grade received for the course.

Any exception to these policies for the College of Nursing requires permission of the student's academic advisor, the director of student support services and the Progressions Committee. A memo to the registrar signed by both of the above individuals must be presented at the time of registration when the exception is to be granted. If a student is only enrolling to complete the work for which an incomplete grade was received he/she must enroll for NUR 999 which carries the enrollment fee.

Absences. Students are responsible for all material presented in class sessions. Faculty will not be available to students who miss or are late for classes. Students are expected to be in attendance at all seminar and clinical practice periods and are responsible for all content presented therein. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so may result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, not to exceed one year. Leaves of absence for one quarter are approved by the advisor and the director of student support services. Leaves of absence for two to four quarters must be approved by the advisor and the Progressions Committee. Nursing students must be in good academic standing to be considered for approval. If approved by the committee and the director of student support services, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements and course sequences in effect at the time of reentry. The student must notify the advisor of his/her intent to return three weeks in advance of re-enrollment. (See Academic Information section for additional requirements).

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the office of college admissions services. Applications for readmission must be received at least six weeks before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Nursing students who received an unacceptable grade in a course which resulted in dismissal must repeat the course upon their reinstatement. The hour and grade points of the second grade only will be counted in the cumulative GPA.

Graduation Requirements. The Bachelor of Science degree with a major in nursing requires a minimum of 180 quarter hours. At least 90 quarter hours are used to fulfill the prehealth curriculum. The remaining 90 quarter hours constitute the upper division curriculum of which nine quarter hours may be upper division electives.

A minimum of 45 quarter hours shall be spent as an upper division student in academic residence at Rush University. R.N.'s completing the baccalaureate degree must complete 36 hours in residence at Rush. Credit earned through proficiency examination may not be used to meet this requirement.

Candidates for the B.S. degree must earn a 2.0 cumulative GPA in all required nursing courses. A 2.0 cumulative GPA must be earned in all computed upper division credits taken at Rush University.

During the fourth year, all students are expected to participate in comprehensive examinations which assist faculty in counseling students for licensure examination and are used for program evaluation. However, no minimum score is required.

Participation at commencement is expected of all graduates.

After receiving the baccalaureate degree, graduates are eligible to write the National Council Licensure Examination for Registered Nurses.

The Master of Science degree in nursing requires a minimum of 55 quarter hours and must include all course work and residencies required for the selected area of concentration. No less than 27 quarter hours shall be spent in residence

at Rush University for the M.S. degree. Part-time master's students must complete degree requirements within five years (60 months).

The Doctor of Nursing degree requires a minimum of 85 quarter hours of postbaccalaureate study and must include all course work and residencies required for the selected area of concentration. No less than 42 quarter hours shall be spent in residence at Rush University for the N.D. degree. Prelicensure course work is additional. No less than 15 quarter hours of postmaster's study shall be spent in residence at Rush University for the N.D. degree. Part-time doctor of nursing students must complete degree requirements within five years (60 months).

The Doctor of Nursing Science degree requires completion of the approved individual program of study. Course work for the D.N.Sc. must be the equivalent of 125 quarter hours of graduate credit in addition to the completed dissertation. No less than 62 quarter hours of postbaccalaureate study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 35 quarter hours of postmaster's study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 20 quarter hours of post nurse doctorate study shall be spent in residence at Rush University for the D.N.Sc. degree. Part-time postbaccalaureate doctor of nursing science students must complete degree requirements within ten years. Post-masters students must complete degree requirements within five years (60 months).

Policies Concerning Student Misconduct

The Committee on Student Misconduct is charged with investigating and adjudicating charges of student misconduct including but not limited to: violation of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession; or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the nursing profession.

All charges of student misconduct shall be presented to the associate dean for educational

programs. If in the opinion of the associate dean the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the associate dean may at any time exercise the right to have the charges heard by the Committee on Student Misconduct. However, in the event that a charge implicates issues of both academic performance and student misconduct, the associate dean shall make a final and nonappealable determination as to which college committee shall hear the matter. In every case, charging student misconduct, will notify the complainant in writing by certified mail within 30 days of receiving the complaint as to whether the matter was referred to the Committee on Student Misconduct or another college committee. The associate dean will place a copy of this letter in the student's file.

If the charge is referred to the Committee on Student Misconduct, within ten (10) working days after the charge of misconduct has been forwarded, the chair of the student misconduct committee will initiate the steps for preparing for a hearing. (A copy of the specific policies and procedures for preparing and conducting a hearing can be obtained from the director of student support services.)

The decision of the committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student by certified mail, to the Faculty Senate, and to the dean. The Faculty Senate shall consider the committee's determination and any written exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the Faculty Senate's recommendation shall be transmitted to the Committee on Student Misconduct, the student, and the dean. The dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct. Notification of the decision will be sent to the student by certified mail, the chairperson of the student misconduct committee, faculty senate and the associate dean for educational programs.

The associate dean will place a copy of this letter in the student's file.

Student Conduct and Academic Honesty

(Please refer to the Rush University policy statement in the General Information section, on page 11-12).

College of Nursing Committees

Faculty Senate. The Faculty Senate is the governing body for the faculty and operates as the Committee on Committees. The senate has nine members representing each academic rank level, as well as members from the faculty-at-large. Members of this body are elected annually and the senate elects its own chairperson. Two student representatives also serve on the senate.

The standing committees of the College of Nursing assist with the work of the college. Members of the committees are elected by the total faculty every June. The committees include:

Committee on Admissions . This committee is responsible for maintaining the admission standards and policies for all nursing programs. There are five members on this committee plus three student representatives.

Committee on Progressions. This committee is responsible for maintaining the progression standards and policies for the all nursing programs. There are six members on this committee.

Curriculum. This committee serves as the monitoring resource for the curriculum. The committee reviews all new courses and/or major changes in the curriculum, establishes and monitors methodology for curriculum evaluation and provides overall consistency for curriculum development. There are seven members on this committee plus two student representatives.

Affirmative Action. This committee is involved with the recruitment and retention of students and faculty from minority groups and data collection and research in relation to affirmative action activities and progress. There are five members on this committee including two student representatives.

Educational Resource. This committee deals with the educational resource needs of the College of Nursing and provides liaison with the University Educational Resource Committee. There are seven members on this committee including two student representatives.

Evaluation Committee. The committee is responsible for coordinating procedures pertaining to all aspects of program evaluations. There are seven faculty members and two student representatives.

Faculty Appointments and Promotions Committee. This committee acts upon the appointments and promotions of faculty in accordance with the Rules of Governance. There are six members on this committee.

Faculty Development Committee. This committee is responsible for the design and implementation of programs to promote the growth and development of faculty. There are six members on this committee including a student representative.

COLLEGE OF HEALTH SCIENCES

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John E. Trufant, Ed.D.
Dean, College of Health Sciences
Vice President, Academic Resources

"The faculty of the College of Health Sciences, through the unification of their academic and operational responsibilities, strive to develop leaders for the future of health care in an array of the allied health professions and management. The hallmarks of scholarly excellence are the excitement of discovery, its communication to others and its application to the field. With faculty and students as colleagues, these are what we seek at Rush."

College of Health Sciences

The College

The College of Health Sciences, founded in 1975, is responsible for education and research in the allied health professions; including management. More than six of every ten health care workers in the United States is in allied health. Over fifty separate categories of professionals comprise this largest segment of the health care workforce.

The faculty of the College of Health Sciences serve the Medical Center as practitioner-teachers. Nearly all have patient care or service responsibilities while concurrently filling academic roles as teachers and investigators. Through the faculty, therefore, the students have access to the latest treatment and practice patterns of skilled clinicians and managers in a dynamic academic health center.

Mission

The primary mission of the College of Health Sciences of Rush University is to provide high quality educational programs for students in selected health sciences disciplines in order to prepare them for professional careers and/or further education. The faculty of the College, in recognizing the central role of the discovery of new knowledge to quality education, clinical excellence, and professional enhancement, foster research activities among themselves, their colleagues and their students; and, they encourage dissemination of the results through their writing and speaking in both internal and external forums. To develop the health team concept, the faculty encourages interdisciplinary activities in education, research and service. The faculty provide service to other programs through their educational and research activities. Contributions of professionals to the health care community are encouraged. Education and clinical components are integrated so that each has a positive effect on the quality and development of the other. Faculty strive to assure standards of excellence in their professions by achieving leadership positions, by pursuing and providing continuing education, by serving their communities, and by commitment to evaluating themselves, their programs and their organizational arrangements. The faculty and administration operate efficiently through responsible stewardship of resources in their care. Further, the faculty plans systematically for the future by monitoring trends and environmental conditions as they may impact the health sciences.

Organization

The organization of the College of Health Sciences centers around seven departments, each headed by a department chairperson. The chairpersons report to the college dean. The senior representative policy body of the College is the College Council, comprised of two faculty members from all of the departments and students from the College at large. Meetings of the Council are ordinarily held each month. Faculty and students may propose agenda items, and guests are welcome by invitation.

The seven departments of the college, each described later in this section, include Medical Technology and Perfusion Technology, which offers a bachelor of science degree. Five departments offer master of science degrees---Communication Disorders and Sciences, Clinical Nutrition, Health Systems Management, Medical Physics and Occupational Therapy. In addition, the College includes the Department of Religion, Health and Human Values, which offers internships in clinical pastoral education and a certificate program in ethics. The Section of Ethics is also organized as part of this department.

Alumni Activities

The College encourages the development of strong ties with its graduates. All graduates are considered alumni of Rush University, and no dues are levied. Each of the programs in the College of Health Sciences has its own alumni organization.

Academic Policies

(Additional policies are listed in the Academic Information section and in the program descriptions).

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term and most instructors give a final examination during this time. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule, one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree.

Graduate credit earned elsewhere may be applied to the master of science degree requirements for Rush, subject to the approval of the department chairperson. Before this credit may be approved to meet degree requirements, a transfer credit approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a transfer credit approval form or register for concurrent enrollment. Information regarding either of these options is available in the Office of the Registrar. Prior approval of the department chairperson is required.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value, and a K grade. A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's grade point average (GPA).

Full-time and Part-time Enrollment. Twelve quarter hours is considered full-time enrollment. Registration for fewer than twelve hours constitutes part-time enrollment.

Undergraduate Enrollment in Graduate Courses. With permission, undergraduate students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should an undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. If a student actually earns 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work.

An incomplete grade does not reflect upon the quality of the student's performance, and upon completion of the unmet course requirements, this grade will be replaced by the new grade. (See Academic Information section for additional requirements.)

Undergraduate Students. Students receiving grades of incomplete are responsible for asking the instructor the exact work required to remove the incomplete. The "I" grade must be removed by the end of the next quarter or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student. If the student is not enrolled in other courses while completing the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Graduate Students. Graduate students may request an incomplete from the course director. An incomplete grade not removed by the end of the next quarter will revert to a final grade as determined by the course director. If the student is not enrolled in other courses while resolving the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Absences. Students are responsible for all material presented in class sessions. Faculty members are not obligated to provide extra help to students who miss or arrive late to classes. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Dean's List. Undergraduate students earning a 3.5 (A=4.0) or higher GPA for at least twelve credits of classroom course work are given recognition by having their names placed on the Dean's List. The Dean's List is published at the beginning of each new quarter for work completed in the previous quarter.

Thesis. Several programs in the College of Health Sciences either require or have an option for a thesis project. Completing one's thesis is a significant academic accomplishment and acknowledges that the student has conducted an independent scientific investigation that will add to the knowledge in his/her field. All students are required to have their theses registered with University Microfilms, Inc. This process includes the publication of the thesis abstract, the microfilming of the thesis, and the copyrighting of the work. In addition, the original copy of the thesis is bound and becomes a permanent part of the collection of The Library of Rush University. The director of the Library of Rush University coordinates the process.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the department chairperson or his/her designate. If approved by the department chairperson and dean, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements, and course sequences in effect at the time of reentry. The student shall provide, to the administrator(s) who granted the leave, written notice of his/her intent to return. The student will pay tuition and fees at the rate in effect at the time of reenrollment.

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the chairperson of the department to which he/she is applying. Applications for reenrollment must be received at

least three months before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Student Appeals Process. A student wishing to appeal an academic decision should follow the process summarized below, in the sequence indicated.

1. Discuss and attempt to resolve the issue with the faculty member in question.
2. Discuss the issue with the department chairperson (or with the program director, if applicable).
3. Submit a written appeal to the student progress and promotion committee of the department.
4. Submit a written request for a hearing to the University Committee on Faculty and Student Appeals. The recommendation of this committee will be forwarded to the College Council and the dean for review and final determination.

College of Health Sciences Committees

College Council. The senior representative governing body of the College of Health Sciences is the College Council. The College Council membership is comprised of both faculty members and students. The dean of the college serves as chairperson. Faculty members represent all departments and ranks. Students represent both undergraduate and graduate levels.

Committee on Senior Faculty Appointments and Promotions. This committee recommends all promotions and appointments of faculty to senior ranks. It is elected by the faculty and has representatives from all departments in the college.

Department of Clinical Nutrition

Philosophy

The primary mission of the Department of Clinical Nutrition is to develop clinical nutrition practitioners who are prepared to assume leadership roles in the profession of dietetics. The program is designed to teach students to integrate and apply principles of food, nutrition, and administrative services in order to improve the nutritional status of individuals and groups. The importance of maintaining a current knowledge base and incorporating new knowledge into practice patterns is emphasized throughout the program.

The philosophy of the department parallels that of the Medical Center in that the academic component is fully integrated with the health care function of the institution. The faculty is committed to excellence in teaching, research, and clinical care and strives to be visionary in meeting the future needs of the profession in a changing health care environment.

The Program

A two-track program having a common core of courses and leading to a master of science degree with a major in clinical nutrition is offered.

Track I is an 18-month dietetic internship/master's degree program that integrates didactic and practicum experience. Upon completion of the program the student is eligible to take the Registration Examination for Dietitians.

Track II is designed for the Registered Dietitian who wishes to expand his/her understanding of advanced human nutrition, clinical management techniques, and the research process.

Accreditation. The Rush-Presbyterian-St. Luke's Medical Center Dietetic Internship is currently granted accreditation status by the American Dietetic Association Council on Education Division of Education Accreditation, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education.

Admission Requirements. The student must hold a baccalaureate degree from an accredited college or university and provide evidence of having successfully completed a college course in basic statistics.

The generally applied guidelines for acceptance into the program are a B average for undergraduate achievement and a combined score of 1200 on the Graduate Record Examination taken within the last three years. In addition, evidence of work experience in food service systems and/or clinical dietetics is highly recommended.

Track I students must provide evidence of having completed a didactic program in dietetics approved by the American Dietetic Association.

Track II students must provide evidence of dietetic registration.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession.

Only grades of A, B or C fulfill degree requirements in all required courses except supervised experience in which a grade of B or above is required. A student who earns a C in a supervised experience must repeat the course. A grade of D or F in a supervised experience results in dismissal from the University.

Automatic probation results when a student's cumulative grade point average (GPA) falls below 3.0 or when a student receives a grade of F in any course other than supervised experience. The Committee on Academic Progress and Promotions notifies any student placed on probation, states the reason(s) for probation and the conditions that must be satisfied for removal of probationary status.

A student who earns a grade of D or F in a required course, except supervised experience, must repeat the course. Failure to earn a grade of C or better in a repeated course results in dismissal from the program. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade replaces the earlier D or F grade in the cumulative GPA.

Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater after completing the next 25 credit hours. Improvement in GPA must be demonstrated each quarter of probation.

Curriculum: Clinical Nutrition

Fall Quarter	Track I	Quarter Hours
NTR 521	Human Metabolism I	3
PVM 541	Biostatistics I	4
NTR 503	Management in Dietetics	3
NTR 511	Supervised Experience in Food Systems Mgmt. I	3
		<hr/> 13
Winter Quarter		
NTR 522	Human Metabolism II	3
NTR 572	Nutrition Communication	3
NTR 582	Introduction to Research	3
NTR 583	Food Systems Operations Analysis	1
NTR 512	Supervised Experience in Food Systems Mgmt. II	3
		<hr/> 13
Spring Quarter		
NTR 541	Interrelationships of Nutrition and Disease I	4
NTR 586	Applied Nutrition Research I	2
NTR 505	Advanced Clinical Nutrition I	3
NTR 513	Supervised Experience in Clinical Nutrition I	3
		<hr/> 12
Summer Quarter		
NTR 542	Interrelationships of Nutrition and Disease II	4
NTR 587	Applied Nutrition Research II	2
NTR 506	Advanced Clinical Nutrition II	3
NTR 514	Supervised Experience in Clinical Nutrition II	3
		<hr/> 12
Fall Quarter		
NTR 590	Special Topics	1
NTR 565	Seminar I	1
NTR 588	Applied Nutrition Research III	2
NTR 515	Supervised Dietetic Staff Experience	5
	Electives	3
		<hr/> 12
Winter Quarter		
NTR 566	Seminar II	1
NTR 574	Management in Nutrition Care Systems	3
NTR 592	Individualized Clinical Practice	1
	Electives	1
		<hr/> 6
TOTALS	Required hours	64
	Elective hours	4
	Minimum Hours Required for Graduation	68

Curriculum: Clinical Nutrition

Fall Quarter	Track II	Quarter Hours
NTR 521	Human Metabolism I	3
PVM 541	Biostatistics I	4
	Electives	
Winter Quarter		
NTR 522	Human Metabolism II	3
NTR 572	Nutrition Communication	3
NTR 582	Introduction to Research	3
	Electives	
Spring Quarter		
NTR 505	Advanced Clinical Nutrition I	1-3
NTR 541	Interrelationships of Nutrition and Disease I	4
NTR 585	Applied Nutrition Research	2
	Electives	3-5
Summer Quarter		
NTR 542	Interrelationships of Nutrition and Disease II	4
NTR 585	Applied Nutrition Research	2
Fall Quarter		
NTR 565	Seminar I	1-3
NTR 585	Applied Nutrition Research	1
NTR 590	Special Topics	1-3
NTR 592	Individualized Clinical Practice	1-3
Winter Quarter		
NTR 566	Seminar II	1
NTR 574	Management in Nutrition Care Systems	3
NTR 585	Applied Nutrition Research	1
TOTALS	Required hours	38
	Elective hours	16
	Minimum Hours Required for Graduation	54

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment.

Track I (combined dietetic internship/master's degree program) is offered on a full-time basis only. The program extends over six quarters including a summer session.

Track II (master's degree program for Registered Dietitians) is offered on a part-time or

full-time basis. The program may be completed in six quarters or longer, up to five years.

Graduation Requirements. A cumulative GPA of 3.0 or greater is required of all graduates.

Track I students shall complete a minimum of 68 quarter hours within 36 months of the beginning of the first quarter of enrollment in the program.

Track II students shall complete a minimum of 54 quarter hours within five years of the beginning of the first quarter of enrollment in the program.

Research Activities

The faculty of the Department of Clinical Nutrition is involved in both basic and clinical research. This activity frequently is in collaboration with Rush Medical College faculty members in such departments as oncology, surgery, obstetrics or preventive medicine. A research laboratory is available to support faculty and student research.

Service Activities

The general internship/master's degree program is administered by the Department of Clinical Nutrition, Rush University. The major portion of the supervised clinical experience is

provided within the facilities of the Food and Nutrition Services Department, Rush-Presbyterian-St. Luke's Medical Center. The academic service departments are organized under one director allowing full integration of operational and academic facilities/staff. This organizational structure provides unique opportunities for the merging of theory and practice within one institution.

In addition to the academic program, the department provides nutrition services to the hospital and to the outpatient area, operates five food service units within the Medical Center and provides leadership in nutrition support in critical care.

Department of Communication Disorders and Sciences

Philosophy

The basic tenet of the faculty in the Department of Communication Disorders and Sciences is that the professional education of speech-language pathologists and audiologists who desire practice in hospitals or other health care facilities, is optimized by drawing upon patients, staff, and the physical resources of an academic medical center. In contrast to many professional training programs, the clinical skills of Rush students are fostered and matured through observation and supervision by practitioner-teachers. All faculty are certified by the American Speech-Language-Hearing Association (ASHA) and participate fully in the clinical process, serving patients that present a full range of communicative disorders. The curriculum meets ASHA standards for clinical certification, and close clinical supervision provides the necessary foundation for clinical education. Departmental faculty is supplemented by the expertise of physicians, scientists, and other health care personnel within the Medical Center. Additionally, the faculty's commitment to research and the belief that an appreciation of scientific matters is valuable to the clinical process provides the basis for optional master's thesis research in the program.

Admission Requirements

Applicants should be eligible for the baccalaureate degree at accredited institutions at the time of application. The baccalaureate degree must be completed before commencing work at Rush University. Effective Fall 1994, students entering the program must have successfully completed course work in introduction to audiology, phonetics and normal articulatory production, and normal language development. Additional suggested content areas include speech and hearing sciences, clinical methods/practicum or psychology of learning, and introduction to communication disorders.

Admission is granted for the fall quarter of each year. The completed application file includes an application form, application fee, three letters of recommendation from individuals acquainted with the applicant's academic or professional background, official transcripts from

all universities attended and official scores from either the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT). The generally applied minimum standards for acceptance into the program are a 3.0 undergraduate grade point average overall (on a 4.0 scale) or a 3.5 in major courses in speech-language pathology/audiology or a 3.5 in the prerequisite course content as listed in the application. The Admission Committee in the department reviews all applications and determines the applicants' eligibility.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections, as well as in the department's student manual).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University. Appeal of dismissal must be made in writing to the department chairperson for consideration by the faculty.

Only grades of A, B, or C may fulfill degree requirements in all required courses as listed in the curriculum outline. Students will be considered in good standing at Rush University unless placed on academic probation. Due to the nature of the programs, clinical performance and classroom performance will be evaluated separately. Policies related to academic progression will be applied independently to clinical and didactic performance.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99 (A = 4.0), inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative grade point average of 3.0 or greater by the end of the next two consecutive quarters.

Students placed on academic probation will be notified in writing by the department chairperson. The letter will state the reasons for

Curriculum: Audiology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 501	Speech & Hearing Sciences I	3	SHS 526	Industrial Audiology	2
SHS 505	Audiology I	2	SHS 532	Advanced Hearing Aids	3
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 589	Research Practicum	3
SHS 545	Anatomy and Physiology of Speech & Hearing	3	SHS 597	Case Presentation	1
SHS 546	Anatomy and Physiology Lab	1	SHS 520	Audiology Practicum V	3
SHS 585	Professional Issues I	1			12
SHS 516	Audiology Practicum I	1			
		14			
Winter			Winter		
SHS 502	Speech & Hearing Sciences II	3	SHS 548	Advanced Electrophysiologic Assessment	3
SHS 506	Audiology II	3	SHS 575	Issues in Counseling	3
SHS 531	Amplification for the Hearing Impaired	3	SHS 586	Professional Issues II	1
SHS 582	Introduction to Research	4	SHS 595	External Practicum	9
SHS 517	Audiology Practicum II	3			16
		16			
Spring			Spring		
SHS 533	Adult Rehabilitative Audiology	3	SHS 595	External Practicum	15
SHS 543	Electrophysiologic Assessment of the Auditory System	4			15
SHS 553	Instrumentation for Hearing and Speech	3			
SHS 544	Pediatric Audiology	3			
SHS 518	Audiology Practicum III	3			
		16			
Summer					
SHS 523	Sign Language	2	Total		104
SHS 534	Pediatric Rehabilitative Audiol.	3	Electives		2
SHS 542	Electronystagmography	3			
SHS 550	ENG Lab	1	Minimum Hours Required for Graduation		106
SHS 566	Pathophysiology of the Auditory System	3			
SHS 519	Audiology Practicum IV	3			
		15			

placing the student on academic probation and the specific requirements which must be met by the student to reestablish good standing.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of less than C in a required course must repeat that course, an equivalent course, or an alternative course. Petitions in this regard will be reviewed

by the Curriculum Committee of the department with final approval or denial by the faculty. A student who earns a grade of less than C in two or more required courses may be dismissed from the University. In a repeated course, the new grade will replace the earlier failing grade in the cumulative GPA. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University.

Interrupted Program. Any student who wishes or needs to interrupt their program must fulfill the following requirements:

1. Meet with the Chairperson of the Department and work out a plan of action before leaving the program.
2. All full-time students must complete all degree requirements within 48 months of the beginning of the first quarter in which the student is enrolled in the department.

- Students must follow all appropriate leave of absence/withdrawal procedures and policies as defined by Rush University.

Transfer or Credit Policy. A student may transfer up to 12 graduate quarter hours from an ASHA accredited program. Up to three of these 12 quarter hours may be in the area of clinical practicum. The issue of transfer of credit will be addressed only after the student is accepted into the program.

Curriculum: Speech-Language Pathology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 501	Speech & Hearing Sciences I	3	SHS 561	Articulation Disorders	4
SHS 505	Audiology I	2	SHS 568	Cognitive Disorders	3
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 589	Research Practicum	3
SHS 545	Anatomy and Physiology of Speech & Hearing	3	SHS 597	Case Presentation	1
SHS 546	Anatomy and Physiology Lab	1	SHS 515	Speech-Language Pract. V	3
SHS 585	Professional Issues I	1			14
SHS 511	Speech-Language Pract. I	1			
		14			
Winter			Winter		
SHS 502	Speech & Hearing Sciences II	3	SHS 524	Fluency, Dysfluency, and Stuttering	3
SHS 556	Dysphagia I	1	SHS 575	Issues in Counseling	3
SHS 564	Aphasia	4	SHS 586	Professional Issues II	1
SHS 582	Introduction to Research	4	SHS 590	External Practicum	9
SHS 512	Speech-Language Pract. II	3			16
		15			
Spring			Spring		
SHS 533	Adult Rehabilitative Audiology	3	SHS 590	External Practicum	15
SHS 551	Diagnostic Methods	3			15
SHS 553	Instrumentation for Hearing and Speech	3			
SHS 557	Dysphagia II	1			
SHS 565	Motor Speech Disorders	3			
SHS 513	Speech-Language Practi. III	3			
		16			
Summer					
SHS 522	Language Disorders in Children	3	Total plus Electives		104 2
SHS 558	Dysphagia III	1	Minimum Hours Required for Graduation		106
SHS 562	Craniofacial Anomalies	3			
SHS 563	Voice Disorders	4			
SHS 514	Speech-Language Pract. IV	3			
		14			

Graduation Requirements

The master of science degree with a major in either speech-language pathology or audiology requires a cumulative GPA of 3.0 or greater in order to graduate. In addition, successful completion of comprehensive examinations or a comprehensive course is required. All degree requirements must be completed within 48 months from the beginning of the first quarter in which a full-time student is enrolled in the department. The minimum number of quarter hours required for graduation is 106.

Professional Certification

Programs in communication disorders and sciences provide the academic background necessary to begin the ASHA clinical fellowship year and for the national certification examinations.

Thesis

A master's of science thesis project is optional for both programs. The complete thesis policy is found in the department student manual.

Practicum

Supervised clinical practicum occurs each quarter during the seven-quarter program. A minimum of 37 quarter hours of clinical practicum is required. Enrollment in each quarter of practicum is contingent upon satisfactory completion (grade of C or better) of the previous quarter's practicum. These experiences include those at selected sites inside and outside of the Medical Center. Opportunities provide experiences with a full range of speech, language and hearing disorders. Students are able to express their preferences with regard to practicum sites outside the Medical Center.

Educational Activities

The Department of Communication Disorders and Sciences provides professional training in speech-language pathology and audiology. Its programs are two of the few in the United States that base the education of speech pathologists and audiologists on the facilities and opportunities offered by an academic health center. In addition to teaching and supervisory responsibilities in the College of Health Sciences, faculty members are involved in educational programs of residents and students in the college of medicine. Faculty participate in grand rounds for various medical specialties and provide in-service programs for staff at Presbyterian-St. Luke's Hospital and at the Johnston R. Bowman Center for the Elderly.

Research Activities

Faculty are involved in independent and collaborative research in the areas of audiology, hearing science, and speech-language pathology. Students are encouraged to participate in the research process, including development of hypotheses, data collection, and presentation or publication of results.

Service Activities

The faculty provide a full range of diagnostic and therapeutic services to a large clinical population, both inpatients and outpatients. The faculty has demonstrated considerable expertise in developing specialized evaluative and treatment programs for the communicatively handicapped. Students and faculty participate in health fairs and screenings throughout the year.

Department of Health Systems Management

Philosophy

The Department of Health Systems Management was formally established in 1975. The department's goals are to provide a graduate program for future health systems managers; to provide postgraduate and continuing education for health systems managers; and to conduct research in order to validate and to further innovation in the management of health care services.

Admission Requirements

Prospective students should have a baccalaureate degree from an accredited college or university with basic course work in financial accounting and statistics. Courses in macro- and microeconomics and computer science are strongly recommended. Applicants are also required to submit scores from either the GMAT or the GRE and three confidential letters of recommendation.

Curriculum

Comprised of six academic quarters, the curriculum is designed to instruct students in the current theory and practice of health services management including the study of organizational behavior, quantitative and analytical techniques, planning, finance, and human resources management. The structure of the curriculum allows students the opportunity to apply managerial principles in real world learning environments and to design and conduct applied research projects.

Curriculum content focuses on:

- an understanding of health services administration through a study of health economics and medical sociology
- knowledge of individual social and environmental determinants of health, disease, and disability through a study of health measurement, patterns and characteristics of illness, health promotion, and disease intervention

- an understanding of management and administrative skills and their application to health services organizations through a study of organizational behavior, quantitative methods, budgeting, information systems, law, planning and policy development, marketing, manpower planning, personnel management, labor relations, multi-institutional arrangements, long-term care, ambulatory care, and managerial decision making

Academic Progression. All graduate students in the Department of Health Systems Management must achieve a grade point average of 3.0 (A=4.0) in all course work each quarter to maintain satisfactory academic status. Academic probation results when a student's grades fall below a quarterly or cumulative grade point average of 3.0 or when a student receives a grade of F in any course. Any health systems management student may be placed on academic probation when the student's academic deficiencies are significant as judged by the Committee on Academic Progress and Promotions. A student on academic probation shall remain so until he/she has remedied all deficiencies and met all requirements established by the committee for removal from academic probation.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Enrollment. The curriculum is offered on a full and a limited part-time basis. A full-time student is one who is registered for 12 or more hours of course credit per quarter leading toward a master's degree with a major in health systems management. The part-time student is one who is registered for four or more hours of course credit per quarter. The program must be completed within a five year time limit.

Curriculum: Health Systems Management

Fall Quarter		Year I	Quarter Hours
HSM 502	Health Care Organization I	G. Knepper	4
HSM 503	Health Care Organization II	S. Sohacki	1
HSM 506	Medical Sociology	M. Counte/D. Bliss	3
HSM 551	Information Systems I	T. Buck/Primozić	4
HSM 582	Intermediate Statistics	L. Thompson	4
Winter Quarter			
HSM 515	Human Resources Management I	J. Hill	4
HSM 533	Health Economics	G. Glandon	4
HSM 545	Organizational Analysis	L. Hodo	4
HSM 571	Operations Management	S. Keers	4
Spring Quarter			
HSM 507	Epidemiology	D. Oleske	4
HSM 531	Finance I	G. Gasbarra	4
HSM 543	Health Law	D. Rice	4
HSM 552	Information Systems II	B. Rose/R. Odwazny	4
Fall Quarter		Year II	
HSM 536	Corporate Finance	B. Koval	4
HSM 561	Strategic Planning	P. Douglass	3
HSM 597	Master's Project	D. Oleske	4
	Elective (<i>Choose one from the two listed</i>)		
HSM 534	Applied Economics	G. Glandon	3
HSM 560	Health Care Policy	I. Shannon	3
Winter Quarter			
HSM 532	Finance II	T. Jendro	3
HSM 562	Marketing Management	J. Carollo	4
HSM 597	Master's Project	D. Oleske	4
	Elective (<i>Choose one from the four listed</i>)		
HSM 557	Quality Assurance in Health Care	M. Terman/S. Robertson	3
HSM 556	Group Practice Management	R. Whitaker	3
HSM 572	Advanced Operations Research	T.B.A.	3
HSM 576	Ethics for Health Care Management	R. Burke	3
Spring Quarter			
HSM 539	Finance Seminar	S. Greenstein/L. Jellinek	3
HSM 546	Advanced Organizational Analysis	M. Counte/J. Short	4
HSM 595	Graduate Seminar	M. Sinioris/J. Trufant	1
	Elective (<i>Choose two from the six listed</i>)		
HSM 516	Human Resources Management II	J. Hill/B. Perret	3
HSM 535	Applied Economics II	G. Glandon	3
HSM 553	Advanced Information Systems	T.B.A.	3
HSM 555	Health Care and the Elderly	Counte/Heelan/Glandon	3
HSM 558	Ambulatory Care Management	D. Bliss/B. Hinrichs	3
HSM 560	Health Care Policy	I. Shannon	3
TOTALS		Required hours	78
		Elective hours	12
		Minimum Hours Required for Graduation	90

The course offerings and instructors are subject to change

Graduation Requirements. To be eligible to graduate, a student must have successfully completed all the academic requirements of the Department of Health Systems Management and achieved a minimum cumulative grade point average of 3.0. In order to receive a master of science degree with a major in health systems management, the student must have earned a minimum of 90 quarter hours of credit. Prior to graduation, the Committee on Academic Progress and Promotions shall recommend to the entire department faculty for its approval those students who are to be awarded degrees.

Educational Activities

Members of the faculty have represented the institution by presenting papers or serving as members of the program faculty in symposia or seminars sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Hospital Administrators, the Hospital Management Systems Society, the Illinois Hospital Association and many other professional groups. Each year the Department of Health Systems Management and the Center for Health Management Studies sponsor the Annual Rush Invitational Seminar on Hospital and Health Affairs. This past year's symposium, "Independence or Interdependence: Emerging Relationships Between Hospitals and Physicians" was attended by a record number of health care executives from across the nation.

Research Activities

The Center for Health Management Studies is the focus for the ongoing development of health services research in the Department of Health Systems Management and the Medical Center. Research enables Rush to continue its national prominence as an innovator and pioneer

in health care delivery. The output of the department's health services research can most effectively contribute to the evolution of public policy and to an environment of practice supportive of an efficient and effective health care delivery system. On occasion, students are given the opportunity to participate as research assistants to further develop their skills and perspectives.

The department sponsors monthly research seminars that provide a forum for health systems management faculty to present and discuss their research activities with interested students, faculty and practitioners from throughout the community.

Service Activities

Members of the faculty of the Department of Health Systems Management are actively involved in the operation of the Medical Center through such capacities as hospital administrator, health care planner, University administrator, financial manager, clinician, corporate and labor attorney, researcher, and data processing manager.

Individuals on the faculty, depending on their areas of expertise, frequently are asked to serve as consultants to hospitals, planning bodies, and other organizations.

Additional contributions to the health care field also include serving as faculty in continuing education programs for health service administrators sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Health Care Executives, the Hospital Management Systems Society and the American Association of Medical Colleges.

Department of Medical Physics

Philosophy

The Department of Medical Physics offers a program of study and research leading to the Master of Science degree. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the department to offer a program that can satisfy the interests and needs of students in several areas of medical physics: dosimetry, imaging applied to medicine, radiation sources, physics of radiation therapy, physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

Career Opportunities

Medical physics is concerned with the application of the concepts, methods and forces of physics to the diagnosis and treatment of human disease. Medical physicists work at the forefront of medical science, often in hospitals with associated academic programs. They provide clinical physics services, carry out research, give direct assistance to their medical colleagues and help train future medical physicists, resident physicians, medical students and medical technicians.

The Program

The master of science with a major in medical physics program is offered through the Department of Medical Physics. In order to produce well-rounded, highly competent medical physicists, the curriculum provides training in the physics aspects of radiation therapy, diagnostic radiology, nuclear medicine, radiation protection, and radiobiology, as well as in such subjects as anatomy, physiology, and computer science. The recommended curricular sequence follows.

Admission Requirements

The successful applicant must meet the following requirements:

- hold a bachelor of science degree with a major in physics from an accredited college or university or

- hold a bachelor of science degree with a major in physical science with a minor in physics from an accredited college or university
- complete one year of college chemistry with laboratory. This requirement may be satisfied within the M.S. program.
- earn an cumulative grade point average (GPA) of 3.0 (A = 4.0) in college work
- earn a cumulative science GPA of at least 3.0 in college work.
- submit Graduate Record Examination (GRE) results achieved within the last three years. It is recommended that results from the physics subject examination also be submitted.
- foreign students submit Test of English as a Foreign Language (TOEFL) results.
- supply three letters of recommendation from previous college or university instructors.
- provide evidence of prior success in pursuing independent study.
- write a description of his/her scientific research interests.

Applicants holding a baccalaureate degree but with no graduate training should apply for the fall quarter to insure appropriate course sequencing. Such applications will be accepted until February 15 with notification to the applicant of admissions committee action no later than April 15. Later applications may be accepted on a space available basis.

Students with graduate school or scientific research experience may apply for admission to begin study any quarter of the year. Such applications should be made at least two months prior to the start of classes for the quarter in question.

Curriculum: Medical Physics

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
MPH 457	Radiation Safety of Radioactive Materials	2	MPH 463	MR Imaging	2
MPH 461	Diagnostic Radiation Physics	3	MPH 506	Clinical Physics Practicum	4
MPH 482	Therapeutic Radiation Physics	3	MPH 590	Seminar	1
MPH 501	Radiation Physics	4		Physiology	3
MPH 590	Seminar	1		Elective	2
		13			12
Winter			Winter		
MPH 458	Radiation Detection & Meas.	2	MPH 505	Radiation Physics Lab	3
MPH 502	Radiological Physics I	4	MPH 506	Clinical Physics Practicum	4
MPH 505	Radiation Physics Lab	2	MPH 590	Seminar	1
MPH 590	Seminar	1	MPH 598	Research	2
	Elective	3		Elective	2
		12			12
Spring			Spring		
MPH 471	Physics of Nuclear Medicine I	3	MPH 505	Radiological Physics Lab	5
MPH 503	Radiological Physics II	4	MPH 590	Seminar	1
MPH 531	Radiation Biology	3	MPH 598	Research	6
MPH 590	Seminar	1			12
	Elective	2			
		13			
Summer					
	Anatomy	4	Minimum Hours Required for Graduation		
MPH 491	App. Comp. Med. Physics	3			
MPH 506	Clinical Physics Practicum	2			
MPH 590	Seminar	1			
	Elective	4			
		14			

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Grading. All medical physics courses will be graded using letter grades except MPH 505, 506, 590, 597, 598 which are graded pass/no pass (P/N).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not

voluntarily withdrawing will be dismissed from the University.

Only grades of A, B, and C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 or 2.99 inclusive or whose cumulative grade point average falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0

or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade will replace the earlier D or F grade in the cumulative GPA.

Students placed on academic probation will be so notified by the department chairperson following a meeting of the Student Progress Review Committee. The letter will state the reasons for placing the student on academic probation and the specific requirements that must be met by the student to reestablish good standing.

Full-time and Part-time Enrollment. Although the faculty recommends full-time enrollment to maximize the opportunities available to students, part-time enrollment for all, or part, of the program may be arranged.

Graduation Requirements. The master of science with a major in medical physics program requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within five calendar years from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 80. The quarter hour requirement is fulfilled by registration in required courses plus elective courses. The required courses are listed in the table above. The elective courses may be chosen from the following:

MPH 465, 475, 484, 486, 504, 542, 565, 575, 581, 582, and 583

Each student must develop and carry out a research project which culminates in the writing of a thesis.

At the end of the first year, the student must take and pass a qualifying examination based on selected basic principles of physics and course work taken to date. The examination will include both written and oral components. Passing this examination qualifies the student to continue work toward the master's degree. A final examination in defense of the thesis will be

given at the end of the second year. Failure to pass the final examination will require determination by the faculty whether the student will be granted a second and last opportunity. Upon such recommendation, a second examination may be scheduled at a mutually determined time within nine months of the initial examination.

Professional Certification

This program provides the basis for certification as a radiological physicist by the American Board of Radiology and the American Board of Medical Physics.

Educational Activities

In addition to providing educational and research experiences for students in the master's program, the medical physics faculty members, most of whom hold joint faculty appointments in Rush Medical College, participate in the education of medical and other health professions students and residents.

Service Activities

Most faculty members are practitioner/teachers who provide patient care services through the facilities of Presbyterian-St. Luke's Hospital. Several faculty members also serve as medical physics consultants to a network of hospitals and health care centers in metropolitan Chicago.

Research Activities

Faculty members are active in theoretical and experimental research in medical physics and its clinical applications. This research includes the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, radionuclide imaging, dosimetry in radiation protection, and radiobiology.

Department of Medical Technology and Perfusion Technology

Medical Technology Program

Philosophy

The contribution of medical technology to the patient and to the health care delivery system is primarily one of diagnostic services. The increasing number and wide range of diagnostic tests performed by medical technologists requires frequent adaptation to new laboratory methodologies and instrumentation. Clinical medicine requires today's medical technologist to be a highly qualified professional who is willing and able to expand and extend his/her theoretical knowledge and technical skills. Today's professional technologist must develop technical expertise as well as teaching and administrative competence. The technologist must be able to adapt to rapid changes in the field while maintaining an optimal level of performance. As a member of the health care team, the medical technologist must have a basic understanding of the role of other health practitioners in order to function effectively and best possible care to the individual and community. Although work in medical technology often does not place the practitioner in direct contact with the patient, the technologist must maintain compassion and empathy and accept the the patient's welfare as the highest priority.

It is the aim of the baccalaureate program in medical technology to educate technologists to meet effectively the changing needs of laboratory medicine.

Admission Requirements

Students wishing to apply to the medical technology program may do so in one of two ways. Students may attend either an accredited college of their choice or one of the schools affiliated with Rush University that offers preparation for medical technology. All applicants must complete the preprofessional requirements. Applicants from institutions that have no affiliation with Rush should apply to the medical technology program by March for admission in the fall. Students at an affiliated

school are recommended for admission to the Rush program by their health careers advisor at the affiliated school.

Of the 17 schools affiliated with Rush University, the following offer preparation for medical technology:

Beloit College, Beloit, Wisconsin
Carleton College, Northfield, Minnesota
Colorado College, Colorado Springs, Colorado
Cornell College, Mt. Vernon, Iowa
Fisk University, Nashville, Tennessee
Grinnell College, Grinnell, Iowa
Illinois Institute of Technology, Chicago, Illinois
Knox College, Galesburg, Illinois
Lake Forest College, Lake Forest, Illinois
Lawrence University, Appleton, Wisconsin
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Rosary College, River Forest, Illinois

Curriculum - Generalist

Preprofessional Program. The prehealth portion of the medical technology program is taken at an affiliated college or other accredited college or university and requires two or three years of study, depending upon the college. These years are devoted to preparing the scientific foundation upon which the practice of medical technology can be built. The first year emphasizes courses in biological, physical, and behavioral sciences, with options in the humanities. The succeeding prehealth years are used to increase depth in the sciences as they relate more specifically to health fields and to enhance personal experience by a broad choice of electives in the humanities.

Curriculum: Medical Technology Generalist

Fall Quarter	Junior Year	Quarter Hours	Fall Quarter	Senior Year	Quarter Hours
BCH 411	Clinical Biochemistry I	4	BCH 413	Clinical Biochemistry III	3
HEM 301	Hematology I	6	MTK 421	Practicum in Clinical Chem.	8
MTK 304	Laboratory Skills	6	MTK 423	Practicum in Immunology	4
		<u>16</u>	MTK 441	Seminar in Medical Technology I	2
					<u>17</u>
Winter			Winter		
BCH 412	Clinical Biochemistry II	4	HEM 425	Hematology II	2
IMM 301	Basic Immunology	3	MTK 405	Clinical Laboratory Information Systems	2
MIC 311	Diagnostic Bacteriology	5	MTK 422	Practicum in Hematology	8
MTK 303	Body Fluid Analysis	5	MTK 425	Practicum in Immunohematology	4
		<u>17</u>			<u>16</u>
Spring			Spring		
IMM 403	Clinical Serology	5	HSM 401	Health Care Management	3
IMM 431	Immunohematology	5	MTK 305	Patient Care Techniques	2
MIC 411	Parasitology, Mycology, and Virology	5	HEM 426	Hematology III	2
		<u>15</u>	MTK 424	Practicum in Microbiology	8
			MTK 442	Seminar in Medical Technology II	1
					<u>16</u>
Summer					
Courses may not be offered in sequence listed but all are required courses			Total Required Hours		97
			Prehealth Hours		90
			Minimum Hours Required for Graduation		<u>187</u>

Specific course offerings and requirements may vary from campus to campus due to curriculum offerings, scheduling, and course content. The following listing suggests the kinds of courses that normally are required before a student comes to the Rush campus:

- Chemistry (including Organic and Quantitative Analysis)
- Biology (including Microbiology)
- Mathematics (Algebra and Statistics)

Professional Program. In the junior and senior years the student integrates the theory of clinical medicine with the practice of clinical laboratory procedures, learning basic theory and skills in hematology, clinical chemistry, immunology, and clinical microbiology in the junior year, going on to more advanced courses in those areas in the

senior year. Senior students apply basic concepts as they rotate through the laboratories of Presbyterian-St. Luke's Hospital and affiliated hospitals. In addition, students are prepared to fill supervisory and teaching positions through courses in management and education.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University. Medical technology students may receive no more than one D in the following courses each year to remain in the program:

- BCH 412, 413
- IMM 301, 403, 431
- MIC 311,411
- HEM 301, 425, 426
- MTK 303, 304

An F grade in any of these courses will result in dismissal.

Work in all practicum courses must be at the C level or better. Any work in practicum courses below the level required for a C grade will result in an F grade. Courses in which an F grade is received may be repeated only once with the new grade replacing the F in the cumulative GPA. A second grade of F in a practicum course will result in dismissal. Any student who needs to repeat a practicum course must do so within one year.

Curriculum and Admission -
Categorical Programs

Candidates must have a baccalaureate degree from an accredited U. S. college or university in biology or chemistry. Those choosing chemistry must have 24 semester or 36 quarter hours of undergraduate chemistry courses. Hematology and immunology require 30 semester or 45 quarter hours in biology. The microbiology program requires 20 semester or 30 quarter hours of biology credits. Students educated outside the United States must have a bachelor's degree and have successfully completed a minimum of one year's college level work in a science curriculum at a U. S. accredited college or university. All transfer coursework from other than U. S. colleges or universities is subject to approval by Rush University.

The Program. Candidates can specialize in categorical programs in hematology, clinical chemistry, immunology or microbiology, and at the completion of the program, become certified by the American Society of Clinical Pathologists and/or by the National Certification Agency for Medical Laboratory Personnel as categorical specialists in one of these areas. Each categorical program is built around a core curriculum and individually designed didactic and

practical courses. All course work carries transferable college credit. The program length is nine months and includes extensive practical experience in the clinical laboratories of Rush-Presbyterian-St. Luke's Medical Center.

Curriculum: Categorical

HSM 401	Health Care Management
IMM 301	Clinical Immunology
MTK 304	Laboratory Skills
MTK 305	Patient Care Techniques
MTK 405	Clinical Laboratory Information Systems
MTK 441, 442	Reasearch Seminar I, II
Categorical Clinical Rotation Courses: 12 to 18 quarter hours in the categorical area	

Graduates may continue in the generalists program and with one additional academic year, complete requirements for the bachelor of science degree with a major in medical technology.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time Enrollment. The medical technology professional program requires full-time enrollment from September to June. In the senior year students spend 40 weeks in the clinical courses .

Certification. The comprehensive technical curriculum at Rush University prepares the student to enter the practice of medical technology. Graduates are eligible to take the National Certifying Examination given by the American Society of Clinical Pathologists, and, upon passing the examination, they become certified as medical technologists, MT(ASCP). Graduates are eligible to take any of the other national certifying examinations if they so desire.

Graduation Requirements. The bachelor of science degree with a major in medical technology requires a minimum of 180 quarter hours. This includes at least 90 quarter hours earned as a lower division student at an affiliated school or as a transfer student. A minimum of 45 quarter hours of academic credit shall be earned as an upper division student in academic residence at Rush University.

Candidates for the bachelor of science degree must earn a 2.0 cumulative grade point average in all computed upper division credits taken at Rush University.

Participation in cap and gown at commencement exercises is expected of all graduates.

Educational Activities

The faculty of the section is responsible for providing both the didactic course work and the clinical experiences necessary for students to complete successfully all degree requirements for the bachelor of science with a major in medical technology. The program is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA).

Research Activities

Faculty members of Medical Technology engage in either technical or educational research. Areas include biochemistry, education, hematology, hospital administration,

immunohematology, immunology, and microbiology.

The Section of Medical Technology supports and is involved in the administration of the Research and Teaching Laboratory. The primary function of the laboratory is to provide research facilities and equipment in support of faculty and student research projects.

Service Activities

Faculty members are actively involved in the clinical laboratories of Rush-Presbyterian- St. Luke's Medical Center, maintaining active research, supervisory, and clinical positions in their specialty areas. Several faculty members hold conjoint appointments in Rush Medical College and provide the laboratory medicine courses for the medical college curriculum.

Perfusion Technology Program

Philosophy

The Perfusion Technology program aims to provide students with both the scientific knowledge as well as the clinical experience in order to make them effective and successful perfusion technologists. The field of perfusion technology is a challenging and expanding profession. The perfusion technologist of today must be able to meet the daily demands of the operating room, be able to adapt to new technologies and uses for the extracorporeal circuit and be part of a profession growing beyond its traditional role in cardiovascular surgery and now encompassing other surgical and non-surgical specialties requiring the use of extracorporeal circuits, support devices or blood salvaging capabilities.

Admission Requirements

All applicants must have satisfactorily completed a minimum of 90 quarter hours in the pre-health curriculum at an accredited college or university. An emphasis on the sciences is preferred and some medical experience is desirable. Rush University does not offer the pre-health curriculum on its campus. No transfer credit is awarded for required coursework in which a grade of less than C has been earned. Required courses must be taken for a letter grade rather than a pass/fail option.

Suggested pre-health curriculum:

<u>Courses</u>	<u>Quarter Hours</u>
Mathematics	6
Biology	12
Chemistry	12
Physics	6
Social Sciences	6
Humanities	12
Electives	36

In addition, prospective students must also submit a letter signed by a cardiac surgeon or chief perfusionist verifying that they have witnessed a minimum of five (5) open heart procedures.

Curriculum

The curriculum in perfusion technology combines scientific study with clinical experience. Students take courses in anatomy, physiology, pathology and pharmacology, often with students of Rush Medical College and the College of Nursing. The clinical experience includes participation in adult and pediatric open heart procedures at Presbyterian-St. Lukes Hospital and at affiliated hospitals.

The curriculum begins in the fall quarter and covers seven quarters, including one summer session (see curricular outline). Faculty include experienced perfusion technologists and cardiovascular and transplant surgeons, in addition to specialists from anesthesia, nursing, medical technology and other related health professions. A unique feature of the program is the emphasis on management techniques as they relate to the administration of the hospital perfusion department. Graduates of the program will be qualified to sit for the certification examination of the American Board of Cardiovascular Perfusion.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University.

Academic Policies

The Perfusion Technology program requires full-time enrollment beginning with the fall quarter of the junior year and continuing through the spring quarter of the senior year, a total of seven consecutive quarters of classroom work and clinical experience.

Suggested Perfusion Technology Curriculum

Fall Quarter	Junior Year	Quarter Hours
PRF 301	Introduction to Perfusion Technology	2
PEF 331	Anatomy	4
PHY 555	Physiology of Cellular Homeostasis I	3
PVM 541	Biostatistics I	4
Winter Quarter		
NUR 362	Introduction to Pharmacology	3
PHY 556	Physiology of Cellular Homeostasis II	3
PRF 320	Bioinstrumentation	3
PRF 311	Junior Seminar I	3
Spring Quarter		
PRF 302	Pathophysiology of Cardiopulmonary Bypass I	4
PRF 305	Extracorporeal Circuits	4
PRF 381	Perfusion Technology Research	2
PRF 312	Junior Seminar II	3
Summer Quarter		
PRF 303	Pathophysiology of Cardiopulmonary Bypass II	4
PRF 431	Clinical Experience I	8
PRF 313	Junior Seminar III	3
Fall Quarter	Senior Year	
PRF 401	Perfusion Technology I	3
PRF 432	Clinical Experience II	8
PRF 411	Senior Seminar I	3
Winter Quarter		
PRF 402	Perfusion Technology II	3
PRF 433	Clinical Experience III	8
PRF 412	Senior Seminar II	3
Spring Quarter		
PRF 403	Perfusion Technology III	3
PRF 434	Clinical Experience IV	8
PRF 413	Senior Seminar III	3
Total Perfusion Technology credits		95
Pre-health credits		90
Total hours for B.S. degree		185

Educational Activities

The faculty of the department is responsible for providing both the didactic course work and the clinical experiences necessary for the Bachelor of Science degree with a major in perfusion technology.

Service Activities

Faculty members are board certified perfusionists actively involved in the daily clinical activities of the Department of Extracorporeal Services.

Department of Occupational Therapy

The Department of Occupational Therapy offers a graduate program which prepares the student for unique contributions to the field of occupational therapy. This professional-level program is designed for individuals with baccalaureate degrees in other fields who are seeking to become occupational therapists at the graduate level.

Philosophy

The faculty of the graduate program in occupational therapy emphasizes the educational approach which integrates occupational therapy and didactic material with clinical instruction and practice. The purpose of this educational philosophy is to allow the student maximum opportunity for the highest levels of integration of content and understanding of rationale for instruction. This philosophy is fostered through such concurrent sequencing of theory and clinically based experience that the student is able to relate to either or both environments depending upon which best facilitates the learning process. The early and continuous collaboration between the theoretical and the clinical learning environments allows for the development of a collegiality between faculty and students. Through such a relationship, the student's personal growth and opportunities for independent thinking are fostered. Since the program is concerned with the student as an individual, the relationship with faculty provides the student with a variety of individualized learning options and experiences within diversified work environments.

Professional Description

Educational Orientation. The professional graduate program at Rush University is designed for the student who has acquired a variety of life experiences through previous educational, vocational, and avocational activities. The program facilitates the incorporation of these life experiences into the educational activities of the program. The educational philosophy utilized in the program which best addresses these spheres is based on theories of adult learning. By basing the program on adult learning theories, it is possible to build on the students' past, connect it to their activities of the present, and predict a future of competent, capable responses to the needs of the profession. The program is designed to enable the student to learn not only

the content and theories of occupational therapy, but also the process of utilizing the multiple resources of the learning environment, including teachers and peers. A series of carefully designed learning experiences, occurring within and outside the classroom, promote independence in conjunction with collegial interaction, problem solving and clinical reasoning, and analysis and synthesis of information. The graduate is a competent therapist who has maintained initial curiosity and has added to it through increased ability for creative thinking. Because of experiences in self-directed learning and in self-identification of needs, the graduate is able to be responsible and responsive to the needs of the profession. The graduate is a potential learner in the field who is able to work in the traditional settings of occupational therapy, but, more importantly, the graduate is flexible, autonomous, and informed so as to adapt to the practice of the field in nontraditional settings.

Professional Orientation. Since the Rush graduate will be prepared to work in a variety of traditional and nontraditional settings, his/her practice base is the result of broad experiences within the many arenas of occupational therapy. The graduates have the ability to add increasing amounts of depth and validation to their treatment programs as a result of their involvement and experiences with problem solving approaches to therapy. Given the combination of breadth and depth of knowledge and experience related to occupational therapy treatment, the primary strength of Rush University graduates will be their ability to function as highly resourceful clinicians. The role of the clinician is the core of all occupational therapy, as it was in the past and as it is projected for the future. The practitioner who is able to base treatment on established fact, internal and external resources, clinical reasoning and problem solving is the practitioner who will contribute to the credibility and viability of the profession. It is this type of practitioner who is expected to be the product of the Rush program. The graduates of the program are able to enter the clinical arena competent and confident of their clinical skills and also able to expand upon those skills as individual situations require it. This continuous process of assessing a situation and expanding upon it contributes to the ongoing personal and professional growth which is vital to occupational therapy. The role of the clinician, as

Curriculum: Occupational Therapy, Professional Curriculum

Summer Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
ANA 565	Gross Anatomy for Occupational Therapy	5	HSM 545	Organizational Analysis	2
OCC 582	Computer Application	3	OCC 513	O.T. Interventions III	5
		<u>8</u>	OCC 518	Interventions III Fieldwork	1
			OCC 533	Prin. & Methods of Supervision	3
			OCC 545	O.T. Management in the Health Care System	3
			OCC 585	Research Proposal	3
					<u>17</u>
Fall			Winter		
OCC 461	Health and Development	3	OCC 595	Advanced Fieldwork I	1
OCC 463	Principles of Movement	3			<u>1</u>
OCC 501	Activity Theory and Skills	4			
PSY 501	Intro. to Psychopathology	3			
		<u>13</u>			
Winter			Spring		
NEU 501	Introduction to Neuroscience	4	OCC 596	Advanced Fieldwork II	1
OCC 465	Group Dynamics	3	OCC 598	Research Implementation (Thesis)	3
OCC 502	O.T. History and Philosophy	3			<u>4</u>
OCC 535	Issues & Perspectives in the Treatment of Children	3			
		<u>13</u>			
Spring			Summer		
OCC 506	Medical Conditions Seminar	3	OCC 590	Advanced Practice Seminar	6
OCC 510	Special Topics Seminar	3	OCC 598	Research Implementation (Thesis)	3
OCC 511	O.T. Interventions I	5			<u>9</u>
OCC 516	Interventions I Fieldwork	1			
OCC 541	Tests & Measurements in O.T.	4			
		<u>16</u>			
Summer					
HCE 581	Introduction to Research	4	Minimum required for graduation. Elective courses are optional and may be taken at the student's discretion.		
OCC 512	O.T. Interventions II	5			
OCC 517	Interventions II Fieldwork	1			
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>16</u>			

it is understood in this context, incorporates other major roles of the therapist. The involvement of the student in these other roles is another major strength of the program. The additional roles of educator, manager, and researcher cannot be separated from the practitioner's role. As the Rush program is designed, the students have, in

the context of their studies, the opportunity to explore the functions of the therapist as an educator, researcher and manager in terms of how they are employed by the practitioner.

Curriculum: Occupational Therapy - Part Time Schedule

Summer		First	Year	Fall	
ANA 565	Gross Anatomy for	5	OCC 533	Activity Theory and Skills	4
OCC 582	Occupational Therapy	3	OCC 461	Health and Development	4
	Computer Application	<u>8</u>			<u>8</u>
Winter		Spring			
NEU 501	Introduction to Neuroscience	4	OCC 506	Medical Conditions Seminar	3
OCC 502	O.T. History and Philosophy	3	OCC 510	Special Topics Seminar	3
		<u>7</u>			<u>6</u>
Summer					
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>6</u>			
Fall		Second	Year	Winter	
OCC 463	Principles of Movement	3	OCC 465	Group Dynamics	3
PSY 501	Intro. to Psychopathology	3	OCC 535	Issues & Perspectives in the Treatment of Children	3
		<u>6</u>			<u>6</u>
Spring		Summer			
OCC 511	O.T. Interventions I	5	HCE 581	Introduction to Research	3
OCC 516	Interventions I Fieldwork	1	OCC 512	O.T. Interventions II	5
OCC 541	Tests & Measurement in O.T	4	OCC 517	Interventions II Fieldwork	1
		<u>10</u>			<u>9</u>
Fall		Third	Year	Winter	
HSM 545	Organizational Analysis	2	OCC 595	Advanced Fieldwork I	1
OCC 513	O.T. Interventions III	5			<u>1</u>
OCC 518	Interventions III Fieldwork	1			
OCC 533	Principles & Methods of Supervision	3			
OCC 545	O.T. Management in the Health Care System	3			
OCC 585	Research Proposal	3			
		<u>17</u>			
Spring		Summer			
OCC 596	Advanced Fieldwork II	1	OCC 590	Advanced Practice Seminar	6
OCC 598	Research Implementation (Thesis)	3	OCC 598	Research Implementation (Thesis)	3
		<u>4</u>			<u>9</u>

Ninety-seven quarter hours required for graduation

Admission Requirements. The applicant to the professional program in occupational therapy must have completed or must show evidence of the following in order to be considered for admission:

- a baccalaureate degree from an accredited college or university
- recommended undergraduate grade point average (GPA) of 3.0 (A = 4.0)
- Graduate Record Examination or Miller's Analogies Test results within the last five years
- three letters of reference
- a statement of familiarity with occupational therapy in the form of observational, volunteer, or work experience
- an essay describing why occupational therapy has been chosen as a career and what is expected of a graduate program
- prerequisite courses, as follows:
 - statistics
 - human growth and development
 - psychology (two courses)
 - introductory sociology or anthropology
 - human anatomy
 - human physiology

An onsite visit will be required of selected applicants. During this time applicants will complete a writing sample, participate in a group interaction and take a tour of campus.

Academic Progression

The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B, or C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99, inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative grade point average of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly GPA below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Only two required courses may be repeated in the professional program. A required course may

be repeated only once and the new grade will replace the earlier D or F grade. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. Only one D or F grade is allowed in a given academic year.

Students placed on academic probation will be so notified by the program director following a meeting of the departmental Progress and Promotions Committee at which academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements to be met by the student to reestablish good standing.

Any deviation from these policies must be approved by the departmental Progress and Promotions Committee.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment. The full-time academic program is a 27-month program covering nine academic quarters. A minimum of 97 credits is required for graduation. Instruction is provided by occupational therapy faculty and faculty members from other departments and colleges within the University.

Completion of all courses may take 39 months, on a part-time basis, but the final 12 months must be conducted on a full-time basis. To be considered part time, a student must be enrolled for a minimum of three credits and fewer than 12 credits per quarter. A minimum of 97 credits is required for graduation.

Scheduling. Courses are scheduled daily, Monday through Friday, with occasional weekend and evening classes.

Fieldwork/Practica. Preclinical experiences, i.e., part-time fieldwork, occur in conjunction with each of the occupational therapy intervention courses. Because the University is part of an academic health center, additional clinical experiences are arranged as components of other courses when necessary.

Six months (two academic quarters) of full-time fieldwork is a requirement of the program. Fieldwork experiences are arranged when possible by mutual agreement of students and faculty and occur at selected sites inside and outside of the Medical Center. Students may choose to extend the program by one quarter during which time they may have an additional fieldwork experience.

Accreditation and Certification. The Occupational Therapy program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in conjunction with the American Occupational Therapy Association. Graduates will be able to sit for the national certification examination for the occupational therapist administered by the American Occupational Therapy Certification Board (AOTCB). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In Illinois, occupational therapists must be licensed in order to practice and state licensure is based on the results of the AOTCB Certification Examination. This is true in many other states but specific requirements for licensure may be determined by contacting individual state licensing boards.

Graduation Requirements. The master of science with a major in occupational therapy requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within 36 months for full-time students and 42 months for part-time students from the beginning of the first quarter in which the student is enrolled in the program. The minimum of 97 quarter hours is required for graduation.

Educational Activities

The Department of Occupational Therapy provides professional training for those seeking to become occupational therapists. The program prepares individuals to enter the professional community to practice the skills of occupational therapy, basing that practice on a full understanding of the foundations and principles of the field, and to engage in research and educational activities to enhance further the theory and practice of occupational therapy.

Faculty members within the Department of Occupational Therapy have teaching and supervisory responsibilities for the master of science degree program in the College of Health Sciences. In addition, faculty members are

involved in integrating the theoretical and clinical aspects of occupational therapy through the implementation of programs with diagnostic and development groups in the various occupational therapy units of the Medical Center.

Research Activities

Members of the department are increasingly involved in identifying research projects in occupational therapy. Faculty members are investigating extended applications of occupational therapy techniques with developmental and diagnostic groups for which there is minimal documentation. These investigations include developing screening instruments and corresponding assessment tools for pediatric, geriatric, psychiatric, and physical rehabilitation populations; investigating alternative methods of occupational therapy interventions with identified populations; and determining the validity, reliability, and applicability of both evaluation and treatment approaches. Research activity is also occurring in areas related to departmental productivity and interdepartmental relationships. Other faculty are involved in educational research arenas which includes the study of admissions processes; clinical supervision; clinical student performances; and educational needs of practicing therapists.

Service Activities

Members of the department provide a full range of assessment and therapeutic services for a variety of diagnostic and developmental populations. Occupational therapy services cover acute and chronic inpatient and outpatient psychiatry; pediatrics, including neonatology, developmental disorders, behavioral and emotional disorders, and learning disabilities; adult physical rehabilitation; geriatrics; and alcohol intervention programs. There are several subunits within each of these areas, and, within each unit, therapists utilize innovative occupational therapy interventions.

Department of Religion, Health and Human Values

About the Department

The Department of Religion, Health and Human Values provides the programs and resources for the study of human values, including ethics, comparative religion, spirituality, death and dying, etc., and preparation for careers in healthcare ethics and clinical chaplaincy. The Bishop Anderson Professorship was established more than twenty years ago to further research and teaching in the area of religion and medicine.

Following the practitioner-teacher model, the Department has two main sections: Health and Human Values and Religion and Health, with all faculty serving as active clinicians in their respective fields.

Health and Human Values

This section currently offers a *Certificate of Graduate Study* in the Area of Healthcare Ethics, and is preparing other certificate and degree programs for the near future.

The certificate program in ethics is staffed by highly qualified, doctorally prepared ethicists most of whom also practice medicine, nursing, or chaplaincy. The program requires one year of part-time study to complete, and covers ethical theory, policy, special topics--such as euthanasia, resource allocation, withholding or withdrawing life-sustaining technologies, etc.--all integrated with clinical practice. The certificate program meets every Wednesday evening of each of three academic quarters, and consists of REL 501, 502, and 503. Admission is usually extended to active professionals in healthcare who have a minimum of a bachelors degree.

Other academic work in this section includes seminars in death and dying, women and healthcare, cross-cultural issues in healthcare, healthcare and popular culture, faith and illness, and others.

This section is also the location of the "Ethics Consultation Service" for the Medical Center, providing for 24-hour-a-day availability of staff ethicists to practicing health care professionals.

The University Program in the Humanities is also based in this section.

Research in health and human values currently centers on patient preferences toward

advance directives, attitudes and practices of clinicians concerning DNR orders, and preferred models used by practitioners for ethical decision-making, issues in doctor-assisted suicide

Religion and Health

This section offers Clinical Pastoral Education (CPE). Faculty, Residents and Interns provide 24-hour, 7-days-a-week chaplaincy services to patients, families and staff.

The CPE program, accredited by the Association for Clinical Pastoral Education, provides basic, advanced, and on occasion supervisory, education in spiritual care. While oriented to graduate theological students, pastors and members of religious orders, it is open also to health professionals and lay persons who are interested and involved in spiritual care in the midst of health crisis. Under faculty supervision students carry responsibilities for interfaith ministry in direct patient care on specified nursing units. Usually students use the program to prepare for parish ministry, chaplaincy or pastoral counseling.

Basic CPE is an intensive 11-13 week introduction to pastoral care which focuses on the interface between and among the student, the patient/family, staff, treatment setting, and larger political/policy context, striving to achieve an understanding of the interaction between approaches to faith and the behavioral sciences in the interpretation of the human condition especially as encountered in healthcare.

Residency in CPE is a year-long program for persons who have completed their basic theological degrees, have some pastoral experience, and who want to specialize in pastoral care. Certification in the College of Chaplains, Inc., for instance, requires such a residency (or its equivalent). Residents, who are hired on a one-year basis as members of the clinical staff of the department, focus on areas of speciality such as oncology, gerontology, pediatrics or HIV+/AIDS.

Research in this section currently focuses on spiritual assessment issues in oncology and HIV+/AIDS, attitudes of religious leaders toward CPE, and correlation studies of various personality inventories with professional formation.

Special Activities

The Department is the home of *The CareGiver Journal*, a publication of the College of Chaplains, Inc. In addition, members of the faculty have collectively published (or have in press) approximately ten books and almost 100 chapters or articles.

The Department hosts conferences and training events for pastoral care professionals and regularly participates in continuing education conferences across the healthcare disciplines.



THE GRADUATE COLLEGE

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John E. Trufant, Ed.D.
Dean, The Graduate College
Vice President, Academic Resources

"Great discoveries in health and medicine emanate from those who have the curiosity, the knowledge and the discipline to seek the truth. They must also have the wisdom to synthesize the meaning of their work and the skill to transmit it. Through collegiality in education and scientific investigation, The Graduate College faculty seeks to develop outstanding scholars who possess these critical characteristics."

The Graduate College

Mission

The primary mission of The Graduate College of Rush University is to promote and assure excellence in educational programs in selected disciplines of the medical sciences. The Graduate College promotes cooperative efforts in achieving high quality educational and research programs to prepare students for successful careers and lifelong professional development.

Philosophy

The Graduate College has been established to provide opportunities for students to work with selected members of the University faculty to earn graduate degrees with emphasis on the doctoral level in many of the sciences basic to health care. This limited goal, coupled with highly individualized programs, maximizes the students' opportunities for self-realization and the faculties' opportunities for sharing their scholarly development, expertise, and experiences on a personal basis. The organizational pattern allows a high degree of faculty and student participation in the educational affairs of the college. Each division's faculty members are active in basic medical research and education, providing opportunities for the advanced student to engage in a research program leading to the degree of doctor of philosophy.

The Graduate College faculty strives to provide individualized and flexible scholarly paths for its students. It avoids arbitrary imposition of uniformity and the encumbrance of unnecessary formality while simultaneously maintaining educational excellence. The faculty believes that such an environment permits independent thinking and high motivation for students' continued learning. Achievement of such a climate requires adaptation to the needs of students with the limitation in numbers of students implicit in such an approach.

Program

The Graduate College prepares students for the master of science and doctor of philosophy degrees. The doctor of philosophy is awarded in recognition of high achievement in a particular field of scientific research as evidenced by submission of a dissertation that demonstrates the power of independent investigation and contributes to the body of existing knowledge.

An undergraduate record of scholastic excellence is an important background for The Graduate College experience.

The Graduate College also provides excellent research and training opportunities for advanced students who want to enroll concurrently in the The Graduate College and in Rush Medical College.

The process of application review includes a search for evidence of creativity and scholarly potential in the applicant. Nondegree students are not admitted with advanced degree objectives and are ineligible to become candidates for advanced degrees. Upon approval by a course director, any individual may audit a course.

In all cases, a student considering application for admission should first establish contact with the director of his/her choice of program to determine divisional requirements.

The student must meet all of the requirements for progress and graduation in the division's graduate studies program. In this regard individualized studies will be programmed to meet the student's need in achieving essential knowledge in preparation for these requirements.

Admission. The faculty of The Graduate College encourages diversity among the student population and therefore, seeks to admit persons from various backgrounds. The Graduate College uses the following guidelines to evaluate candidates for admission. Individual divisions within the college may have additional requirements and criteria for admission. Applicants are encouraged to check with the division of interest first. The college's requirements are as follows:

1. All applicants must have earned at least a bachelor's degree or its equivalent.
2. A cumulative grade point average of 3.0 on a 4.0 scale, or equivalent, from the most recent degree is required.
3. All applicants are required to take the Graduate Record Examination (GRE) aptitude test and have their scores submitted. A combined score for the verbal, quantitative and analytical sections of 1,500 is desirable.
4. All applicants whose native language is not English are required to take the Test of English as a Foreign language (TOEFL). A minimum score of 530 is required.

5. Each applicant is required to have three letters of recommendation submitted.
6. Specific admission requirements may be waived by the Graduate College Council. These will be addressed on a case by case basis.

Applicants who consider themselves to have a special or unique qualities that make themselves strong candidates for graduate education are also encouraged to apply. Research and related job experience are valued highly in the admissions process and will be taken into account. Interviews with applicants are encouraged and can play a significant part in the admission decision. Beyond those measures, the faculty attempts to determine the applicant's motivation and potential for advanced study and a research career in the sciences. In many cases, an on campus interview will be required.

Once The Graduate College admissions office has received all required documents, including the application fee, it forwards the application to the division for review. If the division does not wish to offer admission to the applicant, the division makes that recommendation to the dean, who notifies the applicant of the decision. If an applicant meets all the college and division admission criteria and the division agrees to admit the student, the admissions office is notified and the dean writes to the applicant. If an applicant does not meet the college criteria as outlined above but the division wishes to admit the student, the applicant's admission materials are sent to the members of The Graduate College Council, where a review of the applicant takes place and an agreement to accept or reject is made following a presentation of the candidate to the Council by the division. The dean then notifies the applicant of the Council's decision.

Organization. The Graduate College is one of four colleges of Rush University. In order to carry out its educational mission, the college is organized into divisions; each division represents a separate discipline and each is related to its parent academic department. Currently, the college has the following divisions: anatomical sciences, biochemistry, immunology, medical physics, pharmacology, and physiology. Graduate study in microbiology, currently emphasizing virology, is offered within the division of immunology. One additional division has been formed in cell biology; however no degree is offered in this field. The primary goal of each division is to provide excellent graduate education in the sciences basic to medicine. The

divisions of The Graduate College are flexible and responsive to changing needs and experiences in their disciplines. To that end, the divisions are headed by directors who serve for definite terms of appointment and whose reappointments are subject to periodic review. Each division reports through its director to the dean of The Graduate College and is a member of The Graduate College Council.

The Graduate College Council is the senior representative body of the college. Its membership includes all division directors, three faculty members elected annually at-large from different divisions and two students elected by the students annually. The dean serves as the chairman of the council. The council is responsible for setting policies for the admission of students; the formulation and adoption of general operating policies, standards and procedures of the college; the appointment of graduate college faculty and the approval of those recommended for degrees. Although the dean and the Council hold ultimate responsibility for programs of The Graduate College, the divisions of graduate study retain significant authority in structuring and administering their programs.

The faculty of The Graduate College is drawn from the faculty of the other colleges of Rush University. No faculty member has a primary appointment in The Graduate College. No ranks are associated with appointment to the faculty, and all faculty in The Graduate College are designated Members.

Doctor of Philosophy. The degree of doctor of philosophy (Ph.D.) is the highest earned degree conferred by Rush University. The Ph.D. is restricted to those scholars who have demonstrated superior ability in a recognized academic discipline.

While each division has identified requirements, the Ph.D. degree is not awarded following the completion of any specific number of formal courses nor on the basis of miscellaneous course studies and research. The entire Ph.D. program must be integrated and should be highly research-oriented. It should culminate in a work of literary and scholarly merit, which is indicative of the candidate's ability to conduct original research in a recognized specialty. Ph.D. programs are directed by selected faculty who work closely with graduate students. In practice, each program is composed of formal courses, guided individual study in a chosen field or discipline, study in such cognate subjects as may be required by the candidate's advisory committee, and original research that serves as the basis of a scholarly dissertation.

Program of Study. Each student in The Graduate College shall have a written program of study that establishes clear expectations regarding the course of the student's graduate experience. The student's program should be developed and signed by the division director and the student no later than the end of the first quarter of enrollment. Changes may be made in requirements with the student's agreement or the agreement of the Division's Graduate Advisory Committee.

Thesis and Dissertation. A master's student must complete a thesis; a doctoral student must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a theses or dissertation will follow the sequence of steps described in the manual, *Preparation of Theses and Doctoral Dissertations*. Copies of this manual are available in each graduate division and in the Library of Rush University. Each thesis or dissertation must be original and cannot have been used to meet the requirement of any other degree, either at Rush University or any other university.

Each student will have a Dissertation Committee whose role is to assure that the student's dissertation is of high quality and meets the standards of the division, the college and the university for originality, contribution to the field and scholarly presentation. The Committee is also to assure that the student is making satisfactory progress toward completion of the dissertation. Additional policies on the Dissertation Committee are available from division directors or the dean's office.

At or near the completion of the dissertation, each student will share with the academic community at large the knowledge that the student has developed through a public presentation. Students are responsible for posting announcements on institutional bulletin boards of the presentation that contain the title of the dissertation, the student's name, and the location, date and time at least two weeks prior to the presentation. This public presentation must precede the final approval of the dissertation by the Dissertation Committee.

Academic Progression. Specific regulations governing the process which results in final awarding of the degree are developed by the graduate division responsible for the candidate's progress. While such regulations differ from one division to another, each division's program and regulations are reviewed for approval by The Graduate College Council. In all cases, graduate divisions are required to be explicit and clear

about regulations that will affect the candidate. This must be stringently observed in divisional regulations concerning selection of principal advisors, advisory committees, and a plan of study. Similarly, divisions will be explicit and clear concerning academic policies and procedures surrounding qualifying, preliminary, and final examinations when they are required. The divisions are also responsible for providing the candidate with the support needed to plan and conduct the thesis or dissertation research.

At the same time, a major responsibility of the student is to become familiar with the regulations and expectations of his/her chosen division. These regulations and expectations are included in the *Rush University Bulletin* within the section devoted to each divisional program and within program publications. It is considered to be the student's responsibility to remain knowledgeable about these program regulations as they are set forth; they may change from time to time.

Some divisional programs may require the student to take one or more courses at a university other than Rush. It is the responsibility of the director of the graduate division concerned to make arrangements enabling satisfaction of such course requirements and to inform the student, prior to admission, of such costs and special arrangements as may be necessary.

Admission to Candidacy. Admission to candidacy is evidence that the doctoral student has successfully completed all required courses and has prepared to move into his/her intensive research experience. Admission to candidacy is a demonstration of confidence that the student will successfully accomplish the remaining requirements of the program. At such time as the student is admitted to candidacy, upon notification from the student's division director, the registrar enters "Admitted to Candidacy" and the date on the official transcript.

Academic Policies

(Additional policies are listed in the Academic Information section.)

The Graduate College adopts college-wide policies and procedures and reviews division regulations. Students follow the college and division policies in effect at the time of initial matriculation in The Graduate College although the effect of major changes in policy will be negotiated by the student and division director. Students reentering the college after an absence will be guided by policies and procedures in effect at the time of reentry.

Transfer of Credit. Subject to the approval of the major advisor and the division director, graduate level courses taken at other institutions may be applied to the graduate degree requirements at Rush if they are judged to meet divisional requirements. Grades from courses transferred from another institution are not recorded on the student's academic record; the number of credits is recorded and added to the cumulative number of credits.

Credit Hours. Rush University is on a quarter system. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, two hours of small group discussion or three laboratory hours per week.

Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Pass/No Pass Grades. Each division identifies all required course of its student. No required course may be taken under the pass/no pass option. With permission of the division director, electives may be taken for pass/no pass grades. The master's thesis and precandidacy research are graded P/N. The grading policy for postcandidacy research (699) for doctoral students is determined by each division.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work, not to exceed one calendar year. No student may graduate with an incomplete grade on his/her academic record.

Upon completion of the unmet course requirements a new grade will replace the incomplete grade. A student who fails to remove the incomplete grade within the specified time period will receive a final grade of F.

Academic Standing.

Good Academic Standing. To remain in good academic standing, students must maintain a cumulative grade point average of 3.0 and meet their requirements of his/her division. A student must be in good academic standing to be admitted to candidacy and to graduate.

Academic Difficulty. Each division has policies and procedures regarding students who fail to maintain good academic standing. While the responsibilities of informing students of their academic problems and of establishing conditions for regaining good academic standing reside with the divisions. The Graduate College Council monitors the progress and promotion of all students and gives final approval to award students' degrees.

Dismissal. Grounds for dismissal beyond minimal criteria established by The Graduate College are determined by each division. Should a division recommend the dismissal of a student, the director will forward such recommendation to The Graduate College Council for final action. Letters of dismissal come from the dean. Appeal of a dismissal action begins within the appropriate division.

Full-time enrollment. Full-time enrollment is required of all graduate college students. Students must register for at least 12 but not more than 17 quarter hours per quarter. Students must obtain written permission for exceptions to this policy from the division director.

Residency. Years of residence required by divisional programs are based on the definition that a student must be registered for a minimum of three subjects in each of three quarters to satisfy The Graduate College requirement of a resident year. The Graduate College minimum residency required of all graduate students is registration as a full-time student for eight quarters of at least 12 credit hours each. Unless granted a formal leave of absence, regular graduate students who fail to register for three quarters in each academic year, depending upon divisional requirements, are considered to have withdrawn from the University and must compete for readmission with other applicants.

Extension of Study. Maximum enrollment for degree completion is seven calendar years. Any approved leave of absence will be excluded from this time. A student may petition for an extension of the overall time limit to the division director. If such an extension is granted, the student will be expected to enroll full time for each remaining quarter in residence. If a student proposes to maintain active status in The Graduate College

while at another location, approval by the division director and The Graduate College Council will be necessary. Such a student will enroll each quarter with the registrar of Rush University for zero hours of credit, and will be charged the enrollment fee at the rate in effect at that time.

Leave of Absence. A student who wishes to leave the University for a period of time may submit to the division director a written request specifying the circumstances and period of time involved. All decisions regarding the conditions of the leave and of the reentry into the program will be communicated to the student by the division. No leave of absence shall exceed one calendar year (see Academic Information Section).

Withdrawal from the University. Students withdrawing from the University voluntarily must complete a form available in the Office of the Registrar. The student will obtain the necessary signatures and return all Medical Center material, the identification card. Withdrawal is final once all Medical Center bills have been paid and the completed form is submitted to the Office of the Registrar (see Academic Information Section).

Readmission. Any student who has withdrawn from the University or any dismissed student may apply for readmission by submitting an application for this purpose the admissions office.

An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequence in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment. Application deadlines may vary by division.

Committees of The Graduate College

The Graduate College Council. The Graduate College Council is the senior representative body for The Graduate College. The committee is comprised of all program directors, three elected faculty-at-large representatives and two student representatives. The Graduate College Council is chaired by the dean of The Graduate College.

Curriculum Committee. This committee reviews all courses and programs of study, including new programs and courses, and makes recommendations to The Graduate College Council.

Division of Anatomical Sciences

Philosophy

The Division of Anatomical Sciences offers programs of study at the master's and doctoral level to prepare students for roles in teaching and research. A pedagogic component provides experience in gross anatomy, histology, and neuroanatomy sufficient for the student to be a confident participant in teaching, in the organization of courses and in conferences in the medical setting. Advanced coursework is available in cytology, embryology and developmental biology, regeneration, and the anatomy of joints. It is the goal of thesis and dissertation research to foster the students' conceptual growth as well as independence and resourcefulness in application of anatomical methods to the broader scope of a biomedical problem.

Admission Requirements

The Division of Anatomical Sciences seeks students who demonstrate in their previous educational experience motivation toward teaching and research as well as a capacity for independent study. The tutorial nature of graduate study in the Department of Anatomy requires that consideration be given to potential for the expansion of the student's area of interest with respect to the expertise and resources of individual faculty.

Applications are invited from students who have been awarded the baccalaureate degree; students who have satisfactorily completed other graduate work, or superior medical or other professional students at Rush who wish to pursue concurrent graduate study.

An undergraduate record with performance of at least a 3.0 (A = 4.0) or equivalent level in the major field of study is required. The major, preferably in biology or chemistry, should include laboratory experience; courses in comparative anatomy and embryology are recommended. The Graduate Record Examination (GRE) is required in conjunction with either the biology or chemistry subtests.

Personal interviews are required of applicants whose credentials demonstrate acceptable academic and test performance. The purpose of this interview is to provide the

applicant with a better idea of departmental activities, and to assess his/her basic areas of interest.

Specific divisional admission requirements may be waived at the discretion of the Graduate Advisory Committee in anatomy. Advanced placement credits, also subject to approval, are limited to a maximum of one academic year. Since the course cycle begins in the fall quarter, applicants are ordinarily expected to complete their files by May 1 preceding the intended date of admission.

Curriculum--Ph.D. Program

The first- and second-year curricula are devoted to anatomy course work and to complementary electives selected from cell biology, physiology, biochemistry, pharmacology and immunology. Pedagogic experience in anatomy is provided through teaching assistantships during the second year.

An independent study during the second quarter of the first year is intended to help the student outline a preliminary project to be conducted in the summer following the first year. This project allows the student to apply anatomical methods to experimental objectives established in collaboration with a supervising faculty member. The project is intended to help the student develop lines of interest for additional elective course work and dissertation study.

Preliminary Examination. After completing the course requirements, the student must take the preliminary examination in order to qualify for degree candidacy. This examination emphasizes the student's ability to synthesize material, to solve problems and to communicate verbally and in writing. The first part of this examination consists of a written, comprehensive examination on course material. The second part, an oral examination, is based on the student's dissertation proposal.

Dissertation Research. Upon completion of both parts of the preliminary examination, the candidate devotes his/her time entirely to dissertation research and writing. The dissertation must be an original experimental or applied study; its format and review must comply

with requirements of The Graduate College. The candidate must finally defend the completed dissertation before his/her research committee.

Course Requirements. The program requires a minimum of 140 quarter hours of credit. The Division of Anatomical Sciences maintains a minimum residency requirement of eight quarters of full-time registration in The Graduate College. This residency requirement also applies to students who have received advanced standing.

Three advanced topics in anatomy (8-12 quarter hours total) are required. These are delivered as seminars, tutorials or, in some instances, as laboratory instruction. Courses

offered by the Division of Cell Biology (CEL 501, CEL 522, and CEL 571) are recommended so that four hours from this course series may be applied to the major advanced topic requirement.

The balance of elective hours are subject to approval by the Division of Anatomical Sciences. Two minor electives must be taken outside of the division.

Journal Club. Participation in the departmental journal club is expected each quarter. This club exposes students to current topics in anatomical research and provides opportunities to discuss problems with established investigators.

Suggested Curriculum: Anatomical Sciences

Year I		Doctoral Quarter Hours	Masters Quarter Hours
Fall Quarter			
ANA 451	Histology	5	5
ANA 471	Human Anatomy I	7	7
ANA 501	Supplement to Histology	1	2
ANA 503	Supplement to Human Anatomy I	1	1
ANA 595	Journal Club	1	1
Winter Quarter			
ANA 472	Human Anatomy II	7	7
ANA 504	Supplement to Human Anatomy II	1	1
ANA 581	Approaches & Meth. in Morphological Research	2	2
ANA 595	Journal Club	1	1
	Elective	5	2
Spring Quarter			
NEU 501	Neurobiology	5	5
CEL 501	Cell Biology or Equivalent Course	2	2
ANA 505	Embryology	2	2
ANA 581	Approaches & Meth. in Morphological Research	2	2
ANA 595	Journal Club	1	1
	Elective	2	2
Summer Quarter			
ANA 595	Journal Club	1	1
	Research (Proposal Development)	13	13
Year II			
Fall Quarter			
ANA 591	Teaching Assistantships	9	3
ANA 595	Journal Club	3	3
	Electives	14	2
followed by Written Comprehensive Examination and Thesis Proposal			

Master's Program

A master of science degree with a major in anatomical sciences is offered for individuals seeking advanced study without the full commitment to doctoral study. This is primarily a concurrent degree program for Rush medical students although outside applicants will be considered. Flexibility of this program permits students to pursue cross-disciplinary research in other departments where a structural biology problem is involved.

The program consists of six quarters of study and requires a research thesis. On the recommendation of the program director, a student may petition for admission to the doctoral program.

M.D./M.S. or M.D./Ph.D. Program

The exceptional student with a research orientation may wish to pursue both the M.D. and Ph.D. degrees. Coordination of Ph.D. and medical study is especially feasible in the Division of Anatomical Sciences since introductory course work for the Ph.D. degree can be satisfied within the medical curriculum.

Although master's degree requirements can be completed within the four year medical curriculum, the Ph.D. requires a commitment of at least two years. Arrangements with the medical school can be adapted to suit individual needs.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Assessment of Progress. The student's progress will be assessed continuously based upon performance in the courses taken and upon evaluations by the Graduate Advisory Committee.

Good academic standing requires maintenance of a cumulative grade point average of 3.0 with the exception that students earn B grades in the major anatomy courses. An outline of specific policies relevant to the preliminary examination and dissertation defense may be obtained from the program director.

Guidance. Each entering student is guided in his/her course of study by the program director with the assistance of the Graduate Advisory Committee until such time as the student determines a course of dissertation scholarship

Degree Requirements	Doctoral Program	Masters Program
Core Anatomy Courses	32	22
Electives	21	11
Teaching Assistantship	9	3
Journal Club	6	6
	68	
Research	72	13
Total Hours	140	55

and selects a research advisor.

The research advisor, who must hold an appointment in the Division of Anatomical Sciences, ensures that the student's graduate course work satisfies requirements of the division and The Graduate College; assists the student both in the development of a dissertation proposal and in dissertation research and obtains necessary laboratory and funding resources to complete the student's study.

Research Activities

Modern research and teaching areas in the Academic Facility have been designed specifically to meet the needs of both basic medical science education and research with accessibility to scanning and transmission electron microscopes and a bioinstrumentation laboratory. Individual faculty are available to discuss their research interests with prospective applicants and to provide documentation of current activities.

The opportunities exist for students to establish cross-disciplinary programs with affiliated clinical departments, such as the Department of Ophthalmology or the Department of Orthopedic Surgery, which has one of the major gait laboratories in the country.

Research in neurobiology is focused on cellular responses to nerve injury and repair (Kerns, Jacob, Durica). Mechanisms of pattern formation and histogenesis are being studied in regeneration of amphibian limbs (Dinsmore). Pathology of retinal ischemia and its effects on microvasculature is being studied in the eye

(Hughes). Structural and physiologic studies on the lens are directed to the function of membrane specializations in cell communication (Kuzak). The organization of the red cell membrane is being studied in relation to pathological deformations and the cytoskeletal components of the erythrocyte (Kodadad). Mechanisms and regulation of platelet formation are being studied

in bone marrow (Levin). The pathophysiology of the synovial joint and articular cartilage is being studied in experimental models (Williams). Biomechanical studies on locomotion in health and disease are conducted in the gait laboratory (Andriacchi, Sumner).



Division of Biochemistry

Philosophy

The goal of the graduate program in the Department of Biochemistry is to provide high quality education, practical training, and research opportunities to students who are interested in practicing basic and applied molecular medical biochemistry of cell function. Otherwise stated, the goal is to develop health care professionals who will substantially improve health care delivery to the public. *Medical biochemistry* is perhaps the most fitting single term that can describe the department's scholarly direction. Members of the Department of Biochemistry conduct a broad range of extramurally supported research activities. A strong interaction exists between practicing clinicians and members of the department for investigative expertise in the areas of connective tissue biochemistry, etiology of arthritis, mechanisms and regulation of tumor cell invasion, regulation of gene expression, cell membrane lipid biochemistry, endothelial cell biochemistry and thrombosis, biochemistry of human milk, biochemistry of metalloelements, and applications of clinical biochemistry to medical problems. Some of these research programs are joint efforts with other departments giving the student an opportunity to interact with investigators in other disciplines as well as clinicians. The departmental laboratories are fully equipped with the instruments required for modern research in biochemistry, tissue culture and molecular biology.

Several faculty members are involved in the operation of hospital clinical biochemistry laboratories and perform basic as well as developmental research related to human diseases. These laboratories are available for student training. The Clinical Biochemistry Laboratories are modern, automated, computerized high-volume medical service facilities. The holdings and service of the Library of Rush University, as well as the numerous journals and books received in the department, provide ready access to the scientific literature.

Admission Requirements

Normally, minimum requirements for admission include a bachelor's degree in any specific discipline with a minimum grade point average (GPA) and Graduate Record Examination (GRE) scores as defined by The Graduate College. Specific course requirements are as follows: chemistry---one year each of general

chemistry and organic chemistry plus one semester or one quarter of quantitative analysis; biology---one year of general biology plus one year of intermediate or advanced undergraduate biology; mathematics through calculus; physics---one year. A semester of physical chemistry is recommended but not required.

Students may be accepted with less than the minimum requirements with the understanding that such deficiencies are to be made up during the first year of graduate study and that such make-up work may prolong their studies at Rush. Alternatively, the Graduate Program Committee may waive specific division requirements on a case by case basis as recommended by its credentials subcommittee.

Students are normally admitted in the fall quarter, but the Graduate Program Committee may at its discretion recommend admission for the winter, spring, or summer quarter. Applications may be submitted at any time during the year, preferably before March 1.

Applications for admission to the program will be evaluated by the Graduate Program Committee of the Department of Biochemistry and in special cases the Graduate College Council. Applicants are encouraged to visit Rush University for an interview. Consideration for admission will include overall academic record, results of the GRE, recommendation of the referees, and especially interview results.

Applicants to the joint M.D./Ph.D. program must first be accepted by Rush Medical College. However, those applicants who are not admitted to the medical college may apply for the Ph.D. program and their applications will be processed in the usual manner.

Transfer students with an advanced degree in science may upon the recommendation of the Graduate Program Committee, be admitted to the graduate program in biochemistry with advanced standing. The extent of advanced credit will be determined by the Graduate Program Committee on an individual basis through its credentials subcommittee. All advanced level entrants are urged to see the credentials subcommittee before matriculation.

Organization of the Graduate Program

The Graduate College Council, chaired by the Dean, has the ultimate responsibility for all decisions with regard to all graduate programs in

the college except for those decisions allocated to the division. Within the division, the department chairman has full responsibility for the operation of the graduate program. However, the chairman delegates the day-to-day operation of the graduate program to the Director of Educational Programs, who works closely with the Graduate Program Committee, which recommends admissions, faculty appointments to The Graduate College, follows student progress, approves the appointments of advisors and committees, schedules student preliminary examinations, dissertation proposals and dissertation examinations, and receives the results of such committee deliberations. Both the chairman and the Director of Educational Programs are ex-officio members with vote of all committees dealing with the graduate program.

The Director of Educational Programs is appointed annually by the chairman of the department and serves as the Director of the Graduate Program and member of the Departmental Advisory Committee. He/she is a member of The Graduate College Council. In addition, he/she is responsible for the delivery of the biochemistry instruction for Rush Medical College, the College of Nursing and the Medical Technology program. He/she approves graduate students' programs each quarter, maintains graduate student records, and chairs the Graduate Program Committee in its deliberations.

The Graduate Program Committee consists of eight members appointed by the chairman including the Director of Educational Programs as chairperson, a graduate student selected from the student body, and the department chairman (ex-officio). At least two of the eight appointees will hold their primary appointments in other departments. The Graduate Program Committee transmits to the chairman of the department all graduate program matters for approval. All decisions of the committee are made on the basis of a majority vote of members present. In general, the following list specifies the committee's responsibilities.

1. recommends graduate student admission to the program and specifies advanced students' courses of study. To aid the committee in this task, its chairman appoints a credentials subcommittee consisting of two committee members. Their recommendations are then considered by the committee.
2. follows the progress of each graduate student and recommends probation, dismissal, and leaves of absence. The committee notifies the student's advisor of any actions taken or needed to promote the best interests of the student.

3. appoints the Departmental Examination Committee which prepares the yearly written portion of the preliminary examination.
4. recommends and approves the composition of a Dissertation Advisory and Dissertation Examination Committees, if it deems the student to be ready, and receives the results of the examinations. Recommends a course of action if the examinations are not passed.
5. serves as an informal forum to adjudicate difficulties arising between student and advisor, either directly or by referring these to other committees and/or the Program Director. It also serves as the first instance in a formal grievance or appeal by a graduate student.
6. develops and modifies the graduate program curriculum; reviews and approves course outlines for new graduate course proposals, establishes grading policies and course requirements.
7. recommends appointments of members of the faculty to The Graduate College faculty and recommends discontinuation of such appointments. Only faculty members with Graduate College appointments and active research programs may serve as graduate student advisors.
8. considers any such other matters as may relate to the administration of the graduate program.

Grievances. The graduate program committee serves as a formal grievance forum of first instance. The departmental advisory committee functions as a formal grievance committee of second instance with respect to students. The next avenue of appeal is The Graduate College.

Financial

Tuition is determined by the University for all graduate students, but this is usually waived for qualified students. Scholarships and/or financial aid packages are available for those students who qualify. All Rush University students may apply for financial assistance through the Office of Student Financial Aid.

Student stipends are available on a competitive basis. It is intended that graduate students receive their stipends from the Department of Biochemistry until the individual has passed his/her written portion of the preliminary examination. From that point on, it will be the obligation of the research advisor to provide the student with financial support from his/her extramural research support. At present (1991) this will be \$9,500 (including summers) per year before preliminary examination and may be increased to approximately \$11,000 per year,

determined on an individual basis, after successful completion of the dissertation proposal examination. Faculty members are required to add graduate student salaries to their budget requests to extramural funding agencies or use technician salaries to support the students. This approach assures that graduate students will select those faculty members or programs that are well funded on the basis of quality and competitive review. Thus, the students will have a better opportunity to complete a quality research project and obtain training within a research program that has met peer-review standards.

Curriculum

Introduction. The Ph.D. is a research degree that is conferred in recognition of proficiency in research, breadth and soundness of scholarship, and thorough acquaintance with a specific field of knowledge as determined by the graduate faculty. To attain these goals the curriculum includes:

1. A core of required biochemistry courses that provide the basis for students to pursue their own specialized research.
2. A variety of elective courses that provide the student with the flexibility to tailor their course work to their research interests or needs.
3. Research to be started as soon as possible after matriculation.

During the student's first year he/she will complete the required biochemistry courses, as well as some of the elective courses. He/she must select a research advisor no later than the end of the fourth quarter (summer). Until a permanent advisor (and mentor) is selected, the Director of Educational Programs serves as the student's advisor. During the summer quarters the student will register for a minimum of 12 credit hours. During quarters 5, 6, and 7 the student will take electives, do research, participate in the pathobiochemistry seminars and write the one-day written preliminary examination at the end of quarter 8 (summer of second year). If the written examination is passed (score of 70% or better), the student is expected, as soon thereafter as possible to submit a written dissertation proposal to his/her Dissertation Advisory Committee and defend the proposal in an oral examination before the committee. The student may continue taking formal electives, with the concurrence of his research advisor, while completing his/her dissertation. When the research project has achieved the desired objectives under the guidance of the Dissertation Advisory Committee, the student will defend his/her dissertation as provided for by the

Graduate College rules. Successful completion of the above course of study and research leads to a recommendation that the Ph.D. degree be conferred upon the successful student.

Required Didactic Courses. Any portion of this may be waived on a case-by-case basis by the Graduate Program Committee:

1. **Quarter Hours Required.** A full-time graduate student is registered for 12 or more hours of credit each quarter. A total of 144 quarter hours with usually 12-16 quarters in residence is required for graduation. The Graduate Program Committee may at its discretion recommend a waiver to The Graduate College Council of any portion of this requirement for students with previous graduate work at Rush or elsewhere.
2. **Required courses -** A total of 56 quarter hours of course work is required. Required biochemistry courses are shown in Table 1. The ten elective hours shall be selected from courses listed in Table 2. Additional electives may be taken in subsequent years with approval of the student's research advisor.

Table 1. Required Courses for Biochemistry Graduate Students

Course	Number	Credits
Medical Biochemistry	BCH 471, 472	12
Advanced Biochemistry	BCH 505	6
Biochemical Techniques	BCH 581, 582	8
Connective Tissue Biochemistry	BCH 624	3
Supramolecular Biochemistry	BCH 631	3
Journal Club	BCH 595	6
Seminar	BCH 597	9
Introduction to Research	BCH 698	2
Electives (didactic)		10
Total course work		59
Students register for BCH 699 credits to make 12 hours minimum total each quarter		

All required didactic courses in biochemistry and those biochemistry courses taken to satisfy elective requirements must carry a letter grade. Electives taken outside the Department of Biochemistry may be taken for a letter grade or for a Pass/No Pass as determined by the department. Other nonrequired elective courses may be taken on a Pass/No Pass basis. Research and seminar courses carry a P/N grade.

The department seminar program may be considered to be a part of the student's research

Table 2. List of Recommended Electives

<u>FALL</u>		
IMM 502	Immunology	4
PHR 501	Pharmacology	5
PHY 451	Physiology	5
<u>WINTER</u>		
PHY 452	Physiology	5
<u>SPRING</u>		
CEL 502	Cell Biology	4
IMM 501	Immunology	5
BCH 651	Science and the Law	2
<u>ANY QUARTER</u>		
BCH 690	Minicourses	1 each
Variable topics		
BCH 585	Extramural Research	5
(Open to selected students upon application to Department Chair.)		
BCH 599	Independent Study *	Variable credit
Courses offered by the Cell Biology Division		
* Any topic, under guidance of a professor at Rush or elsewhere. Must be approved by Director of Educational Program.		

experience. Attendance at seminars is mandatory through the first three years at Rush through registration in BCH 597. The seminar chairperson will monitor attendance and, since members are part of the student's research experience, questions concerning seminar topics may be part of the preliminary examination. After a student has passed his/her preliminary examination, he/she may be excused from attending a particular seminar upon the written

approval of the research advisor.

3. Suggested Program (see Table 3). Note that:
 - a. All required courses are taken in the first and second year; electives are taken through most, or all, of the second year.
 - b. A research advisor may be selected by the end of the second quarter of the first year. In general, a research advisor's/mentor's students shall be at least two years apart with respect to their Ph.D. candidacies.
 - c. During the summer, the student registers for 12 hours of research.

Academic Policies

The goals of the Ph.D. program are to provide education, training and research opportunities to students interested in the various branches of biochemistry. All students will acquire a thorough knowledge of normal biochemical processes that occur in the human organism leading to the development of knowledge and skills that are of potential benefit to health care delivery.

The Ph.D. degree will be awarded following the successful defense of a research dissertation that demonstrates the ability of the student to perform and present original scientific work. Prior to this time, the student must have completed all course requirements with a minimum average of B (3.0/4.0) and have passed the Preliminary Examination.

Table 3. Suggested Program of Study

Year	Fall		Winter		Spring		Summer	
1	BCH 471	6	BCH 472	6	BCH 505	6	BCH 699	12
	BCH 581	4	BCH 582	4	Elective	3-4		
	BCH 595	2	BCH 595	2	BCH 595	2		
	BCH 597	1	BCH 597	1	BCH 597	1		
	BCH 698	1	BCH 698	1	BCH 699	2-3		
	BCH 699	1	BCH 699	1				
2	BCH 597	1	BCH 597	1	BCH 597	1	BCH 699	12
	Elective	3-5	Elective	3-5	Elective	3-5	Take written	
	BCH 624	3	BCH 631	3	BCH 699	7-9	preliminary exam	
	BCH 699	4-6	BCH 699	4-6				
3	BCH 597	1	BCH 597	1	BCH 597	1	BCH 699	12
	BCH 699	12	BCH 699	12	BCH 699	12		
	Defend dissertation proposal							

In subsequent years: Enrollment in BCH for 12 hours each quarter until successful dissertation defense. Twelve hours (full-time) enrollment is required each term. It is recommended that the student select an advisor at the end of the winter quarter of the first year but no later than the summer quarter.

Written Preliminary Examination. The one-day written preliminary examination is taken by the student during quarter 8 of his/her graduate studies. It consists of basic biochemistry, biochemical methodology, connective tissue biochemistry, molecular biology and cell biology. Questions relating to seminars may also be included.

The examination is put together by a committee appointed by the Director of Educational Programs with the consent of the Graduate Program Committee. Normally, questions from the faculty-at-large are also solicited. After a student passes his/her written examination, he/she is admitted to Ph.D. candidacy as defined by the Graduate College.

If a student fails the preliminary examination (score of less than 70%), a makeup examination will be given to the student within eight weeks of being notified of the failure. If a student fails the makeup exam, the case will be referred to the Graduate Program Committee, which may vote to dismiss the student or to give the student a third and final opportunity to take the written preliminary examination.

Dissertation Advisory Committee. A Dissertation Advisory Committee for a student may be appointed at any time upon a written request to that effect by the student's advisor. The request shall be forwarded to the Director of Graduate Programs, who will present it to the Graduate Program Committee for approval. Composition of the committee is established according to Graduate College rules.

The Dissertation Advisory Committee will evaluate the student's written proposal and then convene in a formal defense sitting to hear the student's oral presentation and to make suggestions. The main purpose of the Dissertation Advisory Committee is to determine if the student's proposal will form a sufficient basis for writing a Ph.D. dissertation. Following approval of the proposal, the student is expected to complete his/her work substantially as described in the proposal. Any major deviations must be approved by the Dissertation Advisory Committee. Its members also serve as resource persons for the student during his/her dissertation work. All decisions of the Dissertation Advisory Committee will be based on a majority vote of the committee membership.

The format of the written presentation is flexible. It would normally be similar to that of an in-house grant application with literature review, describing previous work done, methods, hypothesis, significance, etc.

Should the Dissertation Advisory Committee not approve the student's proposal, it shall make its recommendation for correcting the defect or

for other action to the Graduate Program Committee.

Dissertation Examination Committee. The Dissertation Examination Committee is appointed at the written request of the student's advisor to the Graduate Program Committee when, in the view of the advisor and the student's Dissertation Advisory Committee, the student is ready to prepare his/her Ph.D. dissertation. It will normally be identical to the Dissertation Advisory Committee though additional members also may be appointed. Inclusion of extramural members is encouraged; however, a majority of the committee membership shall be comprised of the Department of Biochemistry faculty. The Dissertation Examination Committee members receive the student's dissertation at least four weeks before the defense. The defense itself is conducted according to Graduate College rules. It is also expected that work based on the student's dissertation be written in manuscript(s) form ready for submission to a refereed journal. This requirement will be satisfied if such a manuscript(s) has already been submitted, accepted, or published. Upon the recommendation of the Dissertation Examination Committee, the student is recommended to the Graduate College for awarding the Ph.D. degree. Format of the dissertation shall be as specified by The Graduate College. All decisions of the Dissertation Examination Committee are made according to Graduate College policies.

Grade Point Average. Students must maintain a GPA of 3.0 (B) and have no outstanding failures in order to remain in the program, to be admitted to the preliminary examination and to graduate. At the end of each academic quarter, the student's academic progress is reviewed by the Director of Educational Programs. If the student's average is below 3.0, the student will be sent a letter by the Director of Educational Programs informing the student of the consequences of not maintaining an average of 3.0 or above as well as suggestions for improvement. If the GPA is below 3.0 or if the student has one or more failures in a required course(s) taken on a P/N basis, the committee may recommend the student's dismissal from the program or may recommend placing the student on probation for one or two quarters. The committee shall define the terms of the probation for either one or two quarters. The committee shall define precisely the terms of the probation in a letter to the student. If such terms are not carried out by the student and he/she receives a failing grade in a nonrequired elective, the student's record is reviewed by the Graduate

Program Committee to decide how the failure is to be handled.

Student Responsibility. It is the student's and his/her advisor's responsibility to read and observe the regulations set forth by the department, The Graduate College, and Rush University. It is also the responsibility of each student to read and observe the requirements for the Ph.D. degree set forth by The Graduate College and the Graduate Biochemistry Program and to meet deadlines established by both. Failure to receive notice of examination, filing dates, etc., does not exempt students from requirements. It is the student's responsibility to seek out this information.

Time Limit

No more than seven years shall be allowed for the completion of the doctoral program, though quarter by quarter extensions may be granted via petition to the Graduate Program Committee.

Extramural Experience. Selected students will have an opportunity to spend a quarter in a basic science research laboratory in an industrial setting or another recognized institution for research or higher learning in the United States or Europe. The students will be selected for such experience through guidelines established by the department.

During his/her tenure in the outside laboratory or institution, the student will register for BCH 585 Extramural Research (5 hours). The selected student will spend eight to ten weeks (normally during the spring quarter) at an industrial research laboratory in Europe or the U.S. under the guidance of a faculty member in industry or at another research institution, who holds a faculty appointment at Rush. The student will select a major and a minor area from the research areas provided and will study in both these areas during his/her stay at the institution. The student will be required to read assigned articles, take a final examination to be given by the faculty member based in industry or another research institution and submit a report on his/her experience and accomplishments to the Director of Educational Programs. Letter grades based on the student's performance will be given.

During his/her experience at the outside laboratory the student will also be registered for BCH 699 Research (7 hours).

Concurrent M.D./Ph.D. program

A student who has been admitted to, or is currently attending Rush Medical College, may apply for admission to the concurrent M.D./Ph.D. program in the biochemistry department.

The program is tailored to an individual student's needs. Normally the student first takes the required preclinical courses at Rush Medical College and passes the United States Medical Licensure Examination (USMLE), Step 1. The student may then begin work in the graduate program, which would normally take two to three years. Following the completion of graduate work, the student resumes medical studies in the clinical clerkships. Alternatively, the medical student may complete the medical school requirements for graduation before entering the Ph.D. program.

The participant in the concurrent M.D./Ph.D. program will be expected to fulfill the same divisional requirements set by the credentials subcommittee of the Graduate Program Committee. This would include formal course requirements at the appropriate grade level, passing the preliminary examination, and the submission of a high quality dissertation based on original research work. Many formal course requirements for the Ph.D. degree will be met by taking the prescribed Rush Medical College preclinical courses, e.g., biochemistry, pharmacology, physiology, immunology, and electives.

How the student meets any additional formal course requirements will be determined on an individual basis by the Graduate Program Committee. It is expected that most course requirements will be met by the M.D./Ph.D. program participant during the first year in the graduate program and that the preliminary examination will be taken at the end of the first year. The remainder of the student's time is to be spent in research activities. The entire concurrent M.D./Ph.D. program should normally require six to seven years to complete.

Division of Cell Biology

The Program

Generally, cell biology explores the structural organization and functional integration within cells. As a field of study, its knowledge and techniques extend to all the specialized fields of the health sciences. The purpose of the Division of Cell Biology is to supplement understanding of such basic knowledge and techniques for students in the health sciences. The division encourages integration of the resources of people and facilities throughout Rush University to produce a comprehensive study of the cell. Such a purpose must be multidisciplinary for cell biology spans many departments within the University, including anatomy, biochemistry, immunology, microbiology, neurological sciences pathology, pharmacology, and physiology.

Historically, the electron microscope has had a major impact on the growth of cell biology: more recently molecular biology has provided insights into the function of cells. Some of the teaching of the division is centered around the electron microscopy laboratory of The Graduate

College. Students will study the ultrastructure of the cell and its organelles in electron micrographs. But it is most important that they learn about the function of the organelles in a multidisciplinary fashion. Thus, the supramolecular structure and biochemical ultrastructure of the cell constituents are emphasized. Advanced students will learn the technical skills necessary for pursuit of research projects involving cell biological techniques. Teaching is organized with courses in cell and molecular biology and electron microscopy. Students taking such courses may use them as credits toward their Ph.D. requirement in other graduate divisions of Rush University, subject only to the regulations of those divisions.

Courses

The courses available are subject to demand and limitation to graduate students within the graduate, medical, nursing (i.e., graduate nurses), and health sciences colleges.

Division of Immunology

Philosophy

The goal of this program is to train investigators who will contribute to the advancement in understanding immunological and virological mechanisms in health and disease.

Admission Requirements

Students who have received the baccalaureate, master's, or doctoral degree may apply. It is recommended that students wishing to enter the program should have achieved a high level of competence in biology, mathematics, and chemistry. It is important that applicants be adequately prepared to engage directly in graduate study and research.

Candidates usually enter the program in the fall quarter; applications should be submitted as early as possible and no later than April 1. Applications will be evaluated as they are received.

Applicants for admission to the program will be evaluated by the departmental admissions committee. Considerations for admission will include overall academic record, the recommendations of the sponsors, results of a recent Graduate Record Examination, and the description of the applicant's own aspirations and interests. Personal interviews will be arranged for potential candidates after the preliminary screening. Students will be admitted into the program at levels other than first year only under exceptional circumstances; this will require approval by the faculty of the Division of Immunology and by The Graduate College Council.

Curriculum Requirements

A core program of courses encompassing major aspects of immunology and microbiology given concurrently with pre-thesis research comprises the first two years.

The curriculum consists of two academic tracks, immunology or virology. Specialized courses and research training are offered in both areas.

Courses in basic immunology, basic microbiology, virology, biochemistry and cell biology make up the first year core required of all students. In addition, immunology track students must take cellular immunology and molecular immunology while virology track students are

required to take advanced biochemistry and molecular genetics. Elective courses include clinical immunology, medical microbiology, and special topics in host defense, membrane biochemistry, inflammatory, and others. A variety of elective courses from other divisions of Rush University are also available.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

General Information. A minimum of three years of full-time study (four quarters per year) and research, or the equivalent in part time, is required to satisfy the residency requirements of this program.

Upon admission each student will be assigned by the program to an individual principal advisor who will be responsible for guiding the student's academic activities. During the first 12 to 24 months the student will carry an academic program designed for his/her own requirements through frequent discussion with his/her principal advisor, and with the Graduate Advisory Committee. This program should provide the student with a thorough grounding in immunology, microbiology, and appropriate related basic sciences and practical laboratory experience. Following the demonstration of competency in the areas encompassed by the core curriculum and other elective courses, and the acceptance of a dissertation proposal, students will then essentially devote themselves full time, with participation in general departmental activities, to their dissertation research. The research program will be carried out under the guidance of a designated principal advisor and a dissertation committee. Following agreement by the student, advisor, and dissertation committee that a suitable stage in the research program has been reached, the student will prepare and present a dissertation demonstrating the ability to carry out research and make contributions to the area of investigation.

All students must meet the basic requirements of The Graduate College. Passage of the preliminary examination as partial fulfillment for entrance into candidacy for the Ph.D. degree is dependent upon demonstrated competence in the fields of immunology or

virology. This can be achieved by participating in the recommended program of lecture and tutorial courses of both a basic and advanced nature which may be supplemented by independent study. Other requirements, as specified by the student's dissertation advisory committee, may be met by completion of lecture, tutorial, or laboratory courses in other divisions of The Graduate College.

Courses in pharmacology, histology, pathology and statistics are considered relevant to training in immunology and virology; these are available as part of the student's academic program but are not considered essential for all students. It is anticipated that courses in some subjects considered essential for a particular student's academic program will not be available in The Graduate College. Such requirements may be met either by special arrangement with the faculty of other institutions or by enrolling in such courses available at other institutions within the geographical area. Faculty assistance in the identification of these courses and supporting tutorial instruction will be arranged. Involvement also is required in the immunology/microbiology department research conferences and journal clubs.

Assessment of Progress. The academic progress of each student is continuously assessed by each faculty member with whom the student has worked. The use of conventional examinations is encouraged but is not required, and instructors are free to use whichever system of assessment they wish to apply, provided their criteria are made explicit.

To be in good standing, a student must maintain a cumulative grade point average of 3.0 (A=4.0) or better. A student whose cumulative GPA falls below 3.0 will be placed on probation. A student on probation must attain a cumulative GPA of 3.0 within two quarters (excluding summer quarter).

A student who receives a grade of C in more than two required courses will also be placed on probation. For any student on probation, failure to regain good academic standing within two quarters constitutes grounds for dismissal.

Evaluation of the overall progress of a student is based on reports received annually from the principal advisor and the dissertation advisory committee. The reports describe the status of academic achievement, the progress of research and laboratory activities, and identify projected requirements for the remainder of the program.

It should be stressed that the purpose of such assessment and examination is primarily to aid the student in achieving academic goals by determining depth of understanding of the several

areas of study and, when necessary, by identifying problems in order to enlist the aid of other faculty to assist the student in his/her training. Considerable importance in this continuous assessment is placed on the student's ability to communicate. Guided development of the skills required for both literary and verbal presentation of knowledge and ideas, as well as their formulation, is an important responsibility of the faculty in this program.

Preliminary Examination. A written preliminary examination is given at the end of the first year of study. This examination covers the recommended core program and successful completion is required for proceeding into candidacy.

Graduate Advisory Committee. A committee consisting of three elected faculty members, the head of the admissions committee, the chairperson of the Department of Immunology/Microbiology and the division director (appointed by the chairman) shall participate in the administration of this program. The functions of this committee are: to assist each student in the design of an appropriate academic program; to guide both the student and faculty in advisor selection and in the appointment of the dissertation advisory and dissertation examination committees; to ensure the continued satisfactory progress of the student; and to initiate any necessary changes in or additions to this program. The Graduate Advisory Committee also shall review annually the progress of each student throughout the program and shall report annually to the faculty of the division on the progress of each student.

Dissertation Advisory Committee and Dissertation Proposal. Concurrent with the development of a research program and within 10 quarters of admission, the following three steps should be taken and accepted by the Graduate Advisory Committee for the student to continue in the program:

1. formulation of a dissertation advisory committee that shall have five or six members including the principal advisor, three or four faculty members and one "outside" individual with recognized expertise in the candidate's field of interest, selected jointly by the candidate and principal advisor. The outside individual, not of the division, should be a faculty member of an institution of higher education, active in research in the student's area of investigation and willing to maintain active contact with and advise the committee and student

concerning the progress of research training for the duration of the candidacy. When additional advisors are required, these also shall be members of the dissertation advisory committee. The chairperson of this committee shall be an active member of the Department of Immunology/Microbiology. Each student will be required to meet with his/her dissertation advisory committee every six months.

2. presentation to and acceptance by the dissertation advisory committee of a dissertation proposal that should constitute a scholarly outline of work intended, leading to research that will contribute to existing knowledge. The proposal should include a review of the relevant literature, and a detailed outline of the proposed research demonstrating an understanding of the technical and theoretical aspects of the experimental protocols. The student will be required to defend this proposal before the dissertation advisory committee and, if indicated, the Graduate Advisory Committee. This document is considered a blueprint for a suitable dissertation project at the time it is prepared and accepted. Changes in project or strategy during the student's dissertation research may be made with the approval of the advisor and the dissertation advisory committee.
3. successful completion of course work identified in the student's academic program, and adequate performance in a written preliminary examination administered by the Graduate Advisory Committee.

Dissertation. Following admission to candidacy the student shall devote full time to research activities under the guidance of the principal advisor and dissertation advisory committee, and shall be actively involved in all the scholarly pursuits of the Department of Immunology/Microbiology, including tutorials, seminars and journal clubs. The student is expected to seek opportunities to gain experience in teaching and to be involved in the teaching activities of the faculty to the extent that this does not interfere with the progress of the research program.

A student must demonstrate research accomplishment and written communication skills by submitting two or more first-author research papers to refereed journals. The manuscripts may be incorporated into the student's dissertation.

Following at least four quarters of research activity and agreement by the student and the dissertation advisory committee that research

progress is such that a dissertation may be prepared and presented, the Graduate Advisory Committee shall be notified. At least three months prior to the expected date of completion, a timetable will be set by the Graduate Advisory Committee providing a deadline for submission of the dissertation and times for presentation and defense of the dissertation. Additional examinations also may be required and a timetable will be established for these.

The Graduate Advisory Committee will appoint a dissertation examination committee for each candidate. The examination committee shall be composed of the dissertation advisory committee of the student and any additional members of the faculty of The Graduate College deemed appropriate. The dissertation examining committee may, through consultation with the Graduate Advisory Committee, request evaluation of the written dissertation by at least one scientist (external examiner) of international stature in the field of investigation who is not affiliated with Rush University.

The role of the dissertation examination committee is to evaluate the student based on the following: presentation and general defense of the scientific basis of the dissertation in an open lecture; reports of any external examiner(s) concerning the standard of scholarly research presented in the dissertation and an oral defense of the dissertation before the examining committee and approval of the written dissertation.

The dissertation examination committee may request additional examination of the student or evaluation of the dissertation before a recommendation on approval is made to the Graduate Advisory Committee. Upon agreement that the student has satisfactorily met the requirements for the award of the degree of doctor of philosophy, the chairman of the dissertation examining committee and the program director communicates their recommendation to The Graduate College. If within ten quarters following entrance into candidacy the student has not submitted a dissertation or the dissertation advisory committee has failed to notify an intent to submit a dissertation, the Graduate Advisory Committee may assume the role of dissertation advisory committee to evaluate the progress of the student and suggest modifications that would enable candidacy requirements to be completed within one calendar year. It is expected that students will complete the program in less (generally four or five years) than the seven-year maximum period specified by The Graduate College. Requests to the division director and The Graduate College Council for extension of enrollment beyond this period will be considered only under exceptional circumstances.

Research Activities

Areas of current interest in which research training is offered include the immunobiology of the inflammatory response; the complement system, with special emphasis upon C-reactive protein and the acute phase response, and the proteins related to amyloid; mechanisms of complement activation by endotoxin, the control of the complement attack mechanisms and the pathophysiology of complement deficiencies; immunopharmacology, cellular immunology, particularly cell-mediated mechanisms in inflammation; immunobiology of transplantation; growth factors and receptors; the molecular genetics of antibody formation; mechanisms underlying the allergic response; immune interactions of cells and membranes. The training in virology, includes transcription, replication, and final assembly of negative strand

RNA viruses, cellular receptors for human hepatitis B virus, the immunopathogenesis of AIDS; and the molecular pathogenesis of avian reoviruses which cause arthritis. The application of basic research to questions of human health and disease is a general commitment of the faculty of this program.

The current annotated departmental research report is available on request.

Service and Clinical Activities

In addition to offering the graduate program and conducting active research programs, the department teaches immunology and microbiology to medical students, offers an allergy/immunology residency program, and maintains a close affiliation with the hospital's clinical immunology and microbiology laboratory.

Division of Medical Physics

Philosophy

The Division of Medical Physics offers two programs of study and research leading to graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the division to offer graduate degree programs that can satisfy the interests and needs of students in several areas of medical physics: dosimetry; imaging applied to medicine; radiation sources; physics of radiation therapy; physics of diagnostic radiology, physics of nuclear medicine and radiation protection

The programs lead to the following degrees:

- Master of Science with a major in Radiological Sciences
- Doctor of Philosophy with Medical Physics as the area of interest.

In addition to the degree programs, the division offers postdoctoral training in medical physics for individuals who have doctorates in physics or physical science. The division also permits students at large to register for course work.

The counterpart Department of Medical Physics of the College of Health Sciences offers a master of science degree with a major in medical physics.

Admission Requirements

In addition to the basic requirements established by the Graduate College, the division of medical physics has requirements for admission to its programs.

Radiological Sciences Master of Science Program. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. Considerations will include the applicant's overall academic record, evidence of previous ability to pursue independent studies successfully, recommendations from the applicant's former faculty, and a description of the applicant's scientific research interests. The program director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the

applicant. An interview may be requested.

The Graduate Record Examination (GRE) is not required, although it is highly recommended that applicants take the verbal, quantitative, and the appropriate advanced tests. Further information regarding the GRE may be obtained from the Educational Testing Service, P. O. Box 6004, Princeton, New Jersey 08541-6004.

Applications for admission will be accepted by the division for any quarter of the year. Applicants to the program should have received an M.D. or D.D.S. degree from an accredited institution prior to enrolling in the program. The studies required for the masters degree may be carried out concurrently with a residency program provided prior approval is given by the chairmen of the departments and divisions involved. A cumulative grade point average of 3.0 (A = 4.0) is required.

Medical Physics Doctor of Philosophy Program. The Division of Medical Physics seeks students who demonstrate motivation toward research and teaching, as well as a capacity for independent study in their undergraduate or graduate education. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. The division director will determine whether additional supporting evidence would aid evaluation of the application, and, if so, will make appropriate arrangements with the applicant. An interview may be required.

All applicants must meet the following criteria for admission:

- hold a bachelor of science degree in physics from an accredited college or university or
- a bachelor of science degree in physical science with a minor in physics from an accredited college or university
- completion of course work in physics--mechanics, heat, atomic and nuclear physics, thermodynamics, and quantum mechanics. If the student is deficient in physics courses, additional courses will be required.
- completion of one year of college chemistry with laboratory. This requirement may be satisfied within the Ph.D. program.

- cumulative grade point average (GPA) of 3.0 in college work
- cumulative science GPA of at least 3.0 in college work
- prior success in pursuing independent study
- foreign applicants submit Test of English as a Foreign language (TOEFL) results
- results of the GRE taken within the last three years. It is recommended that the GRE subject examination in physics also be submitted
- three letters of recommendation from previous college or university instructors
- a written description of the applicant's scientific research interests

Applications for admission will be accepted for all quarters of the year. Incoming students with no graduate training should apply for the fall quarter due to the scheduling of required courses. Applications for the fall quarter will be accepted until March 1, and a decision will be sent to the applicant by April 15. Later applications for the fall quarter may be accepted if space is available. Students with research experience or medical school education may begin graduate study during any quarter of the year.

Curriculum

Radiological Sciences Master of Science Program. The studies required for the master's degree may be carried out concurrently with a residency program, provided prior approval is given by the chairman of the department in which the resident is being trained. The Master of Science degree is designed to be completed by full-time students in one calendar year; part-time students will, of course, require more time. Each student will submit a thesis on his/her research and will take a final examination in defense of the thesis.

Medical Residents in Therapeutic Radiology. The following courses are required for medical residents in therapeutic radiology:

MPH 457, 458, 481, 482, 483, 484, 486, 492, 531

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program.

Medical Residents in Diagnostic Radiology and Nuclear Medicine. The following courses are required for medical residents in diagnostic radiology and nuclear medicine:

MPH 457, 458, 460, 461, 464, 465, 471, 475, 490

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program. Various other elective courses are available at Rush University.

Medical Physics Doctor of Philosophy Program. The Ph.D. program is based on a study and research schedule that should be completed within four to five years of full-time study beyond the bachelor's degree. The minimum residency requirement established by The Graduate College is eight quarters of full-time enrollment. During the first year, the student will be committed to completing required course work and deficiencies, if any. During the second and later years, required courses will be completed, and the student will be encouraged to enroll in appropriate advanced courses within The Graduate College. Ordinarily, research will begin during the latter part of the second year, and it will continue as the primary activity throughout the third and later years. The following courses are required:

MPH 457, 458, 461, 463, 471, 482, 491, 501, 502, 503, 505, 506, 531, 590, 699, 1 course in physiology, 1 course in anatomy.

The following are a list of elective courses given by the Division of Medical Physics:

MPH 465, 475, 481, 484, 486, 504, 542, 565, 575, 581, 582 and 583.

A student may choose electives from a variety of other courses available at Rush University.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections).

Radiological Sciences Master of Science Program. A minimum of 48 quarter hours of required courses, including research, is required for the Master of Science degree with a major in Radiological Sciences. Of these a minimum of 18 quarter hours of medical physics courses (excluding research) is required. A minor is not necessary in this program. Students must maintain a cumulative GPA of 3.0. The maximum amount of credit acceptable for transfer from another institution is 12 quarter hours. There is

no foreign language requirement. The time limit for completion of the program is five years.

Academic Progression. The graduate program director will function as the academic advisor to the new student. The director will determine the course schedule with the student and will monitor the student's progress.

As soon as practical after the student has entered the program, he/she should select the area of research he/she wishes to consider for the master's thesis. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of scientific advisor.

Once an advisor is chosen, the advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as the chairman of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the thesis proposal, the thesis, and the performance at the thesis defense.

Before the specific thesis research is begun, a detailed proposal, including a literature review, must be presented to the student's advisory committee. At that time, the student will be required to defend orally, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Thesis Defense. Thesis. The thesis is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Thesis Defense. The final examination may be taken upon acceptance of the thesis by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the thesis serves as the final examination in partial completion of the requirements for the M.S. degree. The examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be

selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be invited as guests of the division to examine the thesis and to participate in the final defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Medical Physics Doctor of Philosophy Program. A minimum of 40 quarter hours of medical physics courses (excluding research) must be completed successfully. Additionally, at least 18 quarter hours of minor course credit are required. A grand total of 150 quarter hours of academic credit is required for the Ph.D. degree. A maximum of 60 quarter hours of transfer credit will be accepted. There is no foreign language requirement.

Academic Progression. The graduate program director will function as the academic advisor to the student during the first year. The director will, during this time, determine the course schedule with the student and will monitor the student's progress.

Toward the end of the first year, the student will be expected to take a qualifying examination that covers basic physics and courses in the division that have been completed. This examination includes written and oral components. Based on the results of the qualifying examination and performance in course work, the student may be permitted to continue in the program without conditions. If the student's performance is poor, he/she may be either permitted to continue with added requirements of a remedial nature or dismissed from the University.

During the second year, the student should select the area of research he/she wishes to consider for the Ph.D. dissertation. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of the scientific advisor.

Once an advisor is chosen, this advisor and the student will assemble a dissertation committee of no fewer than five members, at least three of whom are on The Graduate College faculty. After consultation with the student, the division director will appoint a chairperson of the dissertation committee. The committee will evaluate the dissertation proposal, the dissertation, and the performance at the dissertation defense.

Toward the end of the second year or at the beginning of the third year, the student will be expected to take a preliminary examination. The preliminary examination consists of a written comprehensive and an oral examination. This examination can only be given on the recommendation of the dissertation committee after completion of all required courses and elimination of any deficiencies. Administered by the faculty of the division, the examination tests general knowledge of medical physics. At the oral examination, the student will be required to defend the proposal, demonstrating an understanding of the goals and methods of his/her study. The level of performance on this examination will determine whether the student is admitted to candidacy for the Ph.D. degree. Students who fail to gain admission to candidacy may be retested one time only, six to twelve months after the original examination date.

When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Dissertation Defense. Dissertation. The dissertation is a scholarly work based on an original project. Its format and review by the dissertation committee and dean must comply with the requirements of The Graduate College.

Dissertation Defense. The final examination may be taken upon acceptance of the dissertation by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the dissertation serves as the final examination in partial completion of the requirements for the Ph.D. degree. The examining committee consists of a minimum of

five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be invited as guests of the division to examine the dissertation and to participate in the final oral defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Research Activities

Research by medical physics faculty members includes: the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, as well as nuclear magnetic resonance imaging and radionuclide imaging and dosimetry in radiation therapy, radiation protection, radiobiology and hyperthermia.

Rush University issues an annual research report that summarizes research projects of the entire faculty.

Division of Neuroscience

Philosophy

The Division of Neuroscience of The Graduate College at Rush University offers interdisciplinary education in the field of neuroscience at the doctoral level to prepare students for careers in teaching and research. The diversity of interest and expertise among the faculty of the division provides students with educational and research opportunities in neurophysiology, neuroanatomy, behavioral neuroscience, neuropharmacology, neurochemistry, cell and molecular biology, all of which are important for the understanding of the functions of the central nervous system. The resources at Rush and in the Department of Neurological Sciences allow students the unique opportunity to carry out independent research on the basic neurobiological substrates of various neurological disorders.

Admission Requirements

The program is designed for students interested in teaching and interdisciplinary research careers in the neurosciences. Students with an undergraduate degree or medical and other professional students who wish to pursue graduate study may apply. Students are admitted to the program to start during the fall quarter of a given academic year. Applicants for admission are evaluated by an admissions committee chaired by the Director of the division. Candidates are required to provide three letters of recommendation written by individuals who know them academically. Consideration for admission includes the applicant's overall academic record, the quality of the recommendations, his/her motivation and ability to pursue independent studies and the description of the applicant's scientific research interests.

Minimal admission criteria to the program are consistent with the general requirements of The Graduate College and includes a score of at least 1,500 on the Graduate Record Examination and a grade point average of at least 3.0.

Curriculum

Courses. The program is preceptor based. The study and research schedule outlined below should be completed within four to five years of full-time study beyond the bachelor's degree. The minimal residence requirement established by The Graduate College, which is eight quarters of full-time enrollment of at least 12 credit hours per quarter, is followed. During the first two years, students are expected to complete required course work and deficiencies, if any. First year required courses consist of the medical college neurobiology (NEU 451) and physiology (PHY 451 and PHY 452) courses. A graduate student is expected to receive a grade of at least B in these courses. In addition, a graduate student's committee will advise the student to take at least two additional basic science courses offered by the medical school (or The Graduate College) to be chosen from among neuropharmacology (the Alternative Curriculum course), biochemistry, various courses offered in cell and molecular biology, immunology and microbiology depending on background and need for thesis research. In the summer quarter of the first year of study and the fall of the second year, all students are required to enroll in and pass a statistics and experimental design course.

During the first two years of study, students rotate through various laboratories involved in the program and learn certain techniques commonly in use in neuroscience laboratories. The requirement is mastery of four techniques outside the one(s) that is (are) used by the student in his/her research.

The major required course in the second year of study is an Advanced Neuroscience Proseminar (NEU 591) taught jointly by participating faculty. A seminar format is used that encourages extensive discussion and student participation.

A course entitled "Selected Topics in Neuroscience" (NEU 690) is available to advanced students (in their third or fourth year of residence) for credit. The offerings in this course change from year to year depending on demand and interest, and the course is taught by different faculty members.

In addition to coursework, students are encouraged to participate in and carry out independent research in their first two years of residence.

Academic Policies

Students are required to pass a combination of oral and written comprehensive examinations towards the end of their second year and after completion of the required course work. If a student fails the comprehensive examinations, he/she will be given a second chance six months later. A student who fails again will be terminated.

Throughout the first two years of required course work, a student whose grade point average falls below a B will be placed on academic probation.

A student who completes the comprehensive examinations successfully is admitted to candidacy and qualifies for the Ph.D. dissertation proposal defense. Students choose a preceptor to supervise their research during the first year of residence. The preceptor and the student gather an advisory committee which is chaired by a core faculty member of the program, and includes the preceptor and three other members, one from within the program, one from another division within the institution, and one neuroscientist from another institution. The thesis proposal should be in the format of an NIH grant application and will be defended before the advisory committee.

The rest of the student's time in residence is spent on the Ph.D. dissertation research. Each student dissertation is evaluated by a neuroscientist from another institution who is an expert in the specific area of research.

Additional policies are listed in The Graduate College (page 105) and in the Academic Information sections (page 25).

Research Activities

The background and expertise of the faculty cover a broad range of fields within the neurosciences such as behavioral and cognitive neuroscience, neurophysiology, neuroanatomy, neuro- psychopharmacology, cell and molecular biology, etc. Research among the faculty is especially strong in the following areas: transplantation and regeneration; the neurobiological bases of normal memory and of its dysfunction; aging; the neurobiological bases of degenerative disorders, such as Alzheimer's disease and Parkinson's disease; movement control; and the pathophysiology of epilepsy and visual physiology. Thus, depending on interest, numerous interdisciplinary research areas are available to the student.

Division of Pharmacology

Philosophy

The Graduate Division of Pharmacology offers research training in modern molecular pharmacology and cell biology which leads to the award of the Doctor of Philosophy degree. The faculty is committed to research programs which advance knowledge in specific, focused aspects of these disciplines. Students are included as research trainees and they are offered the opportunity to fully participate in the discovery process and to become independent investigators, themselves. This is the sole objective of the training program.

Admission Requirements

Most applicants should consider fall quarter entry into the program to begin a recommended coursework sequence. However, applicants with previous research experience and a clearly identified research training plan in this program may apply for entry at any time of the year.

In addition to the basic requirements established by The Graduate College, the Division has the following requirements for admission to its program:

- A degree from an accredited college which includes a background in biological, physical or quantitative sciences.

Recommended prerequisites include courses in biology, cellular biology, molecular biology, physics, chemistry, organic chemistry, biochemistry, physical chemistry and mathematics, including calculus.

- Academic transcripts from all baccalaureate and post-baccalaureate educational experiences. These should provide evidence of excellent academic performance, which will usually be expressed by a minimal grade point average of 3.0 overall and 3.5 in science courses (A = 4.0).
- A clear, concise expression of the applicant's interests and goals.

- Three letters of recommendation from science faculty who can evaluate the character of the applicant.
- The College makes basic admission requirements of all applicants. Please review the Graduate College description and the specific section on Program Admission.

Applications will be evaluated by the director and the Admissions Committee, who will base their recommendation on several factors. All prior academic experience and the letters of recommendation will be evaluated for an indication of the applicant's potential for success as a graduate student. The statement by the applicant describing goals and motivation will be studied to determine the compatibility between the applicant's requirements and the capabilities of the graduate program. With rare exceptions, applicants will be required to appear for an interview with faculty members before admission to the program.

Curriculum

This program is based on a study and research schedule that should be completed within a three to six year period of full-time study. During the first year, the student is usually committed to completing course work, and begins research training. During the second and later years, courses may be taken, but research continues as the primary activity.

Each student will design a course plan which is appropriate for personal scientific development. The faculty will provide advice and direction in close cooperation with each student regarding courses from all resources in this school and other schools in the Chicago area. The purpose of coursework in this program is to establish a strong base of knowledge for development of the individual in the ultimate area of scientific pursuit. Therefore, a highly individualized approach with a minimum of standard requirements is favored by the faculty. In every case, the student's previous academic accomplishments and current requirements will be balanced when structuring a curriculum.

Academic Policies

Additional policies are listed in The Graduate College (page 105) and in the Academic Information sections (page 25).

Academic Advisor, Principal Advisor. The graduate division director functions as the academic advisor to the student during the first year. The director, during this time, determines the course schedule with the student and monitors the student's progress. Beginning in the first year, the student is expected to gain laboratory experience. This activity is intended to lead to the definition of research interests and to the selection of a principal advisor. The principal advisor, a faculty member in the Division of Pharmacology, then accepts the supervisory role in the development of the student as a scientific investigator.

Academic Requirements. Each student will be responsible for satisfactorily completing a recommended sequence of courses. This division requires a grade of B or better in all recommended courses. Elective courses may be taken for a grade of Pass/No Pass. Students will be allowed adequate opportunity to remedy a course grade deficiency on an individual basis. However, failure to maintain adequate grades in courses is considered cause for dismissal.

Student Grievance Procedure. A plan for resolving any grievance involving a graduate student in this division is in place. The written procedures are available in the office of the director.

Dissertation Committee. After the Principal Advisor is chosen, the advisor and the student will assemble a Dissertation Committee. This committee consists of five members, no more than four to be Division of Pharmacology faculty members. The committee is responsible for providing advice and evaluation at all points of the student's graduate education experience. Specifically, the committee will advise the development of the dissertation proposal and evaluate the proposal, it will advise the development of the dissertation, and it will evaluate and judge the finished dissertation and its presentation and defense.

Dissertation Proposal Presentation. The student will present and defend the dissertation proposal upon the recommendation of the principal advisor and the Dissertation Committee. This will include an exhaustive literature review, clear objectives for the project, detailed methods, a critical preview of the potential results, and an evaluation of the potential impact of the project. The proposal will be written and it will take the form of an NIH grant application. It will be submitted to the committee for review and evaluation several weeks prior to the oral presentation and defense. In addition, the faculty will actively evaluate the student's base of knowledge in the relevant disciplines. Successful satisfaction of this requirement will gain the student admission to doctoral candidacy, and the student will proceed with dissertation research. Lack of success at this stage may result in the assignment of additional coursework or other preparation, a second proposal presentation after a reasonable period of time, or dismissal.

Dissertation Research. The student is expected to accept the responsibility for attainment of the research goals as they are presented in the approved dissertation proposal. The principal advisor will maintain close supervision of the process. Once the research is complete, the student will present a reading copy of the dissertation to the Dissertation Committee for its evaluation and comments. The committee is responsible for offering suggestions to the student on how the work may best be presented in a dissertation. Following the advice, the student will complete the dissertation and make a formal presentation of it to the Dissertation Committee and the available scientific community. The awarding of the Ph.D. degree requires the demonstration of a capability for independent research and a contribution to scientific knowledge as judged by the Dissertation Committee, the Division of Pharmacology Faculty, the Dean of The Graduate College and The Graduate College Council.

Master's Program

The training for the master of science degree is offered to those who have completed supporting coursework, such as biochemistry, cell biology and statistics, and who wish to develop their capabilities in a setting of supervised research. Typical applicants would be senior medical students, medical residents or fellows. This is not an entry level degree program, but rather, one which contributes to an existing career track.

Once the applicant enters the program, a research advisor is assigned and the student begins directed research on an active project, often as an integral member of a team. The experience should require one year, during which the student is critically evaluated for development of skills and understanding related to the research process. A thesis, which describes the work accomplished, is required. It will be presented in written form and as a presentation at the conclusion of the training period.

Concurrent M.D./Ph.D. Program

The graduate program in pharmacology will be offered to the student who has been admitted to both the graduate program in the Division of Pharmacology and to Rush Medical College and who elects to begin both programs of study in the same year. During the first two years, the student will complete the recommended courses in the pharmacology graduate program as well as

the regular medical college curriculum for that period of time.

The student will then interrupt Rush Medical College enrollment and concentrate full-time on graduate studies in the Division of Pharmacology. When the graduate work is complete the student will continue with the clerkship program in the medical college. The student will be strongly encouraged to begin a research program during the summer before course work begins. Research can be included in the curriculum at any time. After the second year, the student will begin full-time enrollment in The Graduate College, and the clerkship program in Rush Medical College will be delayed until the graduate work is complete. During this time, the student will complete the required course work, enroll in advanced or elective courses, present and defend a suitable dissertation proposal, complete dissertation research, and present and defend an acceptable dissertation. The Ph.D. degree will be awarded by The Graduate College upon the successful completion of this training program. The student continues with the clinical training in Rush Medical College. Students who are admitted to the Division of Pharmacology graduate program and to Rush Medical College but who do not begin these study programs at the same time may also benefit from this combined curriculum. An individual study program which includes available aspects of this curriculum can be designed for such students.

Students who enter this program are subject to the full conditions and requirements of both colleges.

Division of Physiology

Philosophy

The program of the graduate Division of Physiology provides state-of-the-art training in the most quantitatively oriented areas of modern physiology and biophysics. To this end a limited number of students are invited to join particular research laboratories as predoctoral fellows, and most of the training occurs in this setting. The sole goal of the faculty is excellence in research and it expects to develop a nucleus of students who will become future leaders in the field.

Admission Requirements

Students who desire to specialize in this program are strongly advised to obtain a broad scientific foundation, including work in the related sciences. Courses in some or all of the following fields are suggested for attainment of this objective: physics, including electronics; chemistry, including physical chemistry; mathematics, including differential equations; molecular and cell biology or cell physiology.

An applicant who holds a degree from an accredited institution will be considered for admission on the basis of the following criteria:

- an undergraduate record of superior quality demonstrating proficiency in quantitative science;
- a well organized plan for graduate study and research compatible with expertise in the division;
- recommendations from at least three college faculty members acquainted with the character of the applicant;
- ability to function in a program stressing an independent approach to the acquisition of knowledge;
- other materials required by the division director.

The Graduate Record Examination (GRE) is recommended but is not required. Except in unusual cases, the minimum prerequisites for admission will be the attainment by the applicant of a 3.0 overall average ($A = 4.0$) in undergraduate studies with a 3.5 average in science courses, preferably including two years of physics or

engineering, inorganic and organic chemistry, physical chemistry, advanced calculus, ordinary differential equations, cell biology or cell physiology.

Applicants for admission to the division will be initially evaluated by the division director and Advisory Committee. Considerations will include overall academic record, evidence of previous ability to pursue successfully independent studies, recommendations of the applicant's undergraduate faculty, and the description of the applicant's scientific research interests. The division director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the applicant to submit such evidence.

Applications judged by the division director to demonstrate satisfactory credentials and interests compatible with the research facilities of the faculty will then be evaluated by all faculty members with expertise in the area(s) of interest of the applicant. Considerations in this phase will include not only academic ability but also the resources available to support research in the indicated area. An interview may be requested. Selection of applicants will be by invitation of a faculty member in the division willing and able to serve as the student's principal advisor and research sponsor after endorsement of the selection by the division director, The Graduate College Council, and the dean. In special circumstances, exceptions to this procedure may be made for students with unusual promise but with no firm commitment to a particular area of research. In such cases, the program director will serve as interim principal advisor. Finally, in the case that the division director would be the principal advisor of a student, the physiology department chairperson shall assume the duties of division director with respect to that student.

Curriculum

Courses. Usually prior to starting the program students will have selected a faculty member as principle advisor. All students admitted to the division will be required to enroll in the medical physiology course as soon as possible after admission, and before the dissertation proposal, and obtain an average grade of B or better over all quarters. The student will, in the first two years enroll in courses appropriate to the student's research interests as agreed upon in

consultation with the principal advisor and the director of the graduate program.

It is anticipated that courses deemed essential to the student's graduate training by the division occasionally will not be available in the Division of Physiology or other divisions of The Graduate College. In this case, arrangements will be made for the student to enroll in such courses at other institutions and performance in these courses will be required to be at the same level as for courses at Rush. In certain circumstances, a program of supervised independent study may be recommended as an alternative to particular course work.

Individual course requirements may be exempted on the basis of a past academic record or by the successful completion of a special examination covering the content of the required course. Such exemptions will not be made automatically solely on the basis of a past academic history but will be carefully judged on an individual basis by the division director and Advisory Committee. Unless waived, students will enroll in eight credit hours of course work outside the Division of Physiology.

Course Offerings. The following courses will be available, subject to demand and limitation, to graduate students within The Graduate College:

- PHY 451 Physiology I
- PHY 452 Physiology II
- PHY 502 Introductory Membrane Biophysics
- PHY 503 Physiology of Striated Muscle
- PHY 504 Neurophysiology
- PHY 521 Mathematical Methods
for Physiologists
- PHY 523 Circuit Theory and Practical Design
- PHY 531/532 Physiological Modeling
- PHY 590 Special Topics in Physiology
- PHY 598 Introduction to Research
- PHY 640 Applied Electrophysiology
- PHY 641 Molecular Mechanisms in Control
of Ion Permeability
- PHY 651 Advanced Topics in Muscle
Physiology
- PHY 653 Problems in Synaptic Physiology
- PHY 655 Sensory Neurophysiology
- PHY 690 Research Topics in Physiology
- PHY 699 Dissertation Research

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Dissertation Proposal. Upon admission to the division, the student and his/her principal advisor shall begin to make preparations for a proposal upon which the student's original research project will be based. Such preparations will include intensive study of the literature in the student's field of interest, instruction in the basic laboratory skills necessary for professional development in the field, and any other requirements established by the principal advisor and division director, in addition to the course requirements discussed above.

No later than 36 months after admission, the candidate shall present to his/her dissertation committee an original proposal for contribution to knowledge in his/her area of specialization. It shall include an extensive review of the relevant scientific literature, a description of the technical aspects of the proposed studies, an outline of the anticipated experimental approach to the major problem of interest, and a discussion of possible results and their interpretation. The student will be expected to defend both his/her proposal and general ability to achieve professional competence before this committee.

The dissertation committee shall have at least three members: the principal advisor; the division director; and, whenever possible, an individual outside the institution with national stature in the candidate's field of interest selected jointly by the candidate, principal advisor, and division director. In addition to evaluating the content of the dissertation proposal, the outside member shall have a responsibility to maintain close and frequent contact with the student and principal advisor and to advise the division director concerning the progress of the academic program. Ordinarily, the dissertation committee shall be constituted as soon as possible after admission of a student to the division.

The dissertation proposal may be submitted to the faculty prior to completion of course requirements in order to enable research activity to begin, but the student will not be formally admitted to candidacy until this is satisfactorily completed.

Candidacy. Upon acceptance of the dissertation proposal, the student shall be admitted to candidacy for the Ph.D. and shall be expected to devote fully his/her energies to the program. A minimum residency requirement of one calendar year following admission to candidacy must be met by all students unless special exceptions

are granted by the division director and dean. The principal advisor shall make frequent reports to the division director concerning the student's progress, and should either faculty member or the candidate feel it appropriate, the dissertation committee can be called into session to judge the student's continued participation in the graduate program or to determine possible alterations in the area of his/her research efforts. In addition, the student and principal advisor will be expected to consult periodically with the other committee members who may also request the division director to call formal meetings of the dissertation committee.

Conflicts between the student and/or any members of the dissertation committee not resolvable by the full committee may be referred to the advisory committee of the division or higher authority as specified in the policies and procedures of The Graduate College.

The degree of doctor of philosophy is given in recognition of high attainment and ability in a particular field of scientific research as evidenced by submission of a dissertation showing power of independent investigation and forming an actual contribution to existing knowledge. Such dissertation will be submitted to the candidate's dissertation committee for review and defended orally at least three months before the degree is granted. The dissertation committee will ordinarily request an evaluation of the candidate's dissertation by a scientist of national stature not affiliated with Rush University.

Acceptance of the dissertation by the dissertation committee will be reviewed by The Graduate College Council and the dean, along with the candidate's entire academic performance in The Graduate College. Determination of completion of all requirements will result in the dean's recommendation that the degree be awarded at the next scheduled commencement exercises of Rush University.

Should the candidate not have submitted a dissertation three years after admission to candidacy, the dissertation committee shall be convened to evaluate the candidate's progress, and, if proper, to suggest alteration in the program.

Research Activities

Individual Research Projects

Viral Fusion. Fusion between membranes is a widely occurring cellular process. It is a critical event in exocytotic release of neurotransmitters and hormones, fertilization of egg by sperm, viral infection of cells, and intracellular membrane and protein trafficking. To study the process in a biophysically controlled system, Fred Cohen and Lane Niles are

examining the fusion of influenza virus to planar membranes. Influenza virus was chosen because the single protein, the hemagglutinin (HA) glycoprotein, responsible for both binding and fusion, has been cloned and crystallized and its structure resolved at 3 Å. They load the virions with the fluorescent dye octadecylrhodamine B (R18) at self-quenching concentrations. Upon membrane fusion, the dye is released into the planar membrane and as it diffuses and becomes diluted, the concentration-dependent quenching is relieved. This results in a flash of light when the bilayer is observed by video fluorescence microscopy. Flashes occur only as a result of membrane fusion and so the flash assay allows systematic study of virion-planar membrane fusion.

When planar membranes were made with phospholipids, fusion was observed but it was independent of pH, regardless of whether the lipids were neutral or charged, homogeneous or heterogeneous. However, it is well-known that in cellular systems influenza virus fuses in a pH-dependent manner -- fusion of viral envelopes and endosomal membranes occurs when the endosome is acidified, thereby releasing the nucleocapsid into the cellular cytosol. Thus, while the minimal requirement for fusion is a phospholipid bilayer, additional constituents are required for low-pH stimulated fusion. Because terminal sialic acids on both glycoproteins and glycolipids of host membranes are the receptors for binding influenza, Cohen and Niles added gangliosides to the membrane: these glycolipids contain terminal sialic acids. pH-dependent fusion occurred for all lipid mixtures when gangliosides were included in the membrane. Furthermore, rates of fusion at pH 7.4 were insignificant with gangliosides, much lower than without gangliosides, a clear indication that HA was stabilized by attaching to the gangliosides. When glycolipids without sialic acids were included in the lipid mix, then pH-independent fusion was obtained, as occurred with phospholipids alone. Thus, the minimal requirement for pH-dependent fusion is a bilayer membrane which contains terminal sialic acids. These results indicate that sialate acts as an agonist in conferring pH-dependent fusion. To explore further this idea they incubated virus with free sialyllactose. (The sialate is coupled to the lactose with the same linkage as occurs in gangliosides. It is, in effect, the relevant carbohydrate moiety removed from the ganglioside backbone). The sialyllactose inhibited fusion to ganglioside-containing membranes, which is expected because the HAs of the virus were fully occupied by sialate and hence not able to bind to the gangliosides. More surprisingly, the sialyllactose also inhibited fusion

to phospholipid membranes. Thus, occupying the sialate-binding site on the HA inhibited fusion even though the membrane does not contain sialate. They have developed a simple state model which accounts for these phenomena.

During these studies it became clear that a computer automated system was needed to recognize flashes to quantify fusion routinely. To recognize flashes, Cohen and Niles analyze sequential video frames; they identify time varying regions as objects and classify them as either flashes, moving particles, or noise. With user-chosen input parameters, the flash detection system recognizes all flashes, either bright or dull, temporally long or short, spatially large or small. Although the detector does not miss flashes, it sometimes incorrectly identifies non-flashing objects as flashes. The correctness of assignment is checked by eye. This procedure is practical and greatly reduces human effort. To illustrate, for 512 x 512 pixels and 30 frames/sec there are 7.5 MBytes of raw data per second. A person cannot routinely determine flash rates by watching full frames (to say nothing of characterizing flash brightness profiles) because large rates with numerous concurrent flashes can occur. But judging the computer-identified flashes requires significantly less effort. After editing, the time series for occurrence of flashes is generated, yielding the probability density function for the initiation of flashes. This density is used to test whether models for the activation of fusion could give rise to the observed temporal flash pattern.

Protein insertion into membranes and voltage-dependent channels. In an independent project, Fred Cohen is collaborating with Dr. William Cramer of Purdue University on studies of colicin E1 in membranes. Colicin E1, one of a family of colicin proteins, is plasmid-encoded by some strains of *E. coli*, kills other strains of *E. coli* that do not harbor the producing plasmid by forming voltage-dependent ion channels in the inner membrane of the attacked cell, and has a known crystallographically-determined structure in solution. It is, thus, an excellent model to determine the physico-chemical principles that control protein translocation from an aqueous phase into phospholipid bilayer membranes and the molecular basis for voltage-gating.

Recently, Cohen and Cramer have been investigated the structural pattern and changes that characterize the translocation-competent state; the folding pattern of the amino acids has been determined. They previously showed that acidic pH or small amounts of detergents, well below their critical micelle concentrations greatly augments channel formation. They have now shown that a hydrophobic domain of the protein,

becomes exposed to the aqueous phase when the pH is lowered or detergents added. Further, these treatments increase the protein's susceptibility to proteases. While for other proteins this fingerprint of changes has sometimes been taken to indicate massive unfolding, such is probably not the case with colicin: direct measurements show an unaltered Stokes radius. The changes observed probably reflect increased mobility of residue side chains, which allows accessibility of both protein residues to proteases and the hydrophobic core to water. In additional studies, Cohen and Cramer have used site-directed mutagenesis mutants to characterize the folding pattern of this 35 residue stretch within the bilayer when the channel has formed. Activity and ion selectivity measurements showed that this hydrophobic stretch spans the bilayer twice in a α -helical hairpin loop in the open channel.

Pulmonary Cells. Thomas DeCoursey has had a long-term interest in ion channels. This interest encompasses both the properties and function of ion channels (i.e. mechanisms of ion permeation, block, etc.) and the relationship between ion channel function and the physiological or pathophysiological behavior of cells. Due to a quirk of nature perhaps, the cells he has studied have mainly K^+ channels; consequently most of his research has been on K^+ channels, although other channels are presently under study.

Type II alveolar epithelial cells. The main project in the lab is "patch-clamping" type II alveolar epithelial cells. These cells: (1) produce, secrete, and take up (i.e. reprocess) pulmonary surfactant, a substance which keeps alveoli from collapsing; (2) are involved in fluid and electrolyte transport, at least in vitro; and (3) after injury to the lung, proliferate and differentiate into type I epithelial cells, which are flat non-secretory cells covering about 95% of the alveolar surface. A long-term goal is to discover mechanisms by which ion channels are involved in these functions of type II cells, by correlating the presence and/or activation of these channels with the physiological functions of the cells.

The first step is to characterize the ion channels in type II cells. In collaboration with Dr. Elizabeth R. Jacobs, Dr. DeCoursey has described two types of K -selective ion channels in type II cells, one resembling the delayed rectifier of excitable cells, the other is identical to a channel described previously in mouse T lymphocytes. Both of these channels open when the membrane is depolarized, inactivate with maintained depolarization, and are blockable by

external tetraethylammonium ions (TEA). Delayed rectifier channels are present in most type II cells studied, the other type is found infrequently. Comparison of other properties of cells expressing each type of K^+ channel revealed that cells with delayed rectifier channels had larger specific capacitance, suggesting that their membranes are more folded. Future studies may reveal whether these two channels are present in functionally different subtypes of type II cells. An important aspect of the characterization of ion channels is their pharmacologic sensitivity which ultimately may be correlated with that of surfactant turnover or other physiological functions of type II cells. The search for K^+ channel blockers has led to several interesting observations on mechanisms of block, specifically regarding the site of action of the blockers and several examples of state-dependent block (e.g. that open channels are blocked preferentially).

Other ion channels present in alveolar epithelial cells, including a chloride conductance and a novel hydrogen ion conductance, are currently being studied.

Endothelial cells. A second project involves endothelial cells. These cells line blood vessels, and have recently been implicated in transducing humoral signals to vascular smooth muscle cells. Cultured bovine pulmonary artery endothelial cells have inwardly-rectifying (IR) K^+ channels which are present in most membrane patches and in cells studied in the whole-cell configuration. Endothelial cells are a nearly ideal preparation in which to study various biophysical properties of IR channels, because there is usually only negligible contamination by other ion channels, and small spherical cells can be selected to optimize electrical recording conditions. Using this preparation, Drs. DeCoursey and M.R. Silver have demonstrated that IR channels have an intrinsic gating mechanism which operates independently of block by internal Mg^{2+} .

Lymphocytes. The third project in the lab involves T lymphocytes from a mutant strain of mice, which are a rich source of type 'I' K^+ channels. Drs. DeCoursey and M. S. Shapiro studied the ion selectivity and permeation properties of these channels. One of the most interesting observations is that permeant ions affect the gating kinetics (the opening and closing) of these channels. Rb^+ in the external solution slows closing by a factor of 14. The simplest mechanism to account for the results is an external modulatory site which binds monovalent cations and affects closing kinetics depending on the species of ion bound. Closing

kinetics are mainly determined by the species of permeant ion in the external solution, but under certain conditions an effect of the internal ion can be observed. The proposed modulatory site must therefore be either within the permeation pathway or in the outer vestibule, near enough to the pore mouth that local ion concentrations are altered when outward current is flowing.

Ionic permeation and excitation-contraction coupling. Dr. Eisenberg's laboratory is concerned with the mechanisms by which ions move through open channels. Measurement techniques have outstripped our ability to analyze results and so work is aimed at theoretical issues necessary to understand the experimental data, perhaps to even design the experiments. Drs. Barcilon, Chen, and Eisenberg have constructed a model of a channel as a hole in a dielectric, allowing charge to exist in all its form, and current to flow. Using asymptotic analysis, they have reduced this formidable set of partial differential equations to tractable form, and have shown how classical physiological approximations can be derived. Under some conditions those approximations are valid; under others, they are not. Experiments can easily be performed to test their dielectric theory; parameters can be determined in one set of conditions, and the experimental results predicted (without the freedom of adjustable parameters) in another.

The parameters of the theory just described are macroscopic averages of the atomic properties of the molecules making up a channel. Drs. Chen, Eisenberg, and Elber (of the University of Illinois-Chicago, Department of Chemistry) are computing the motions of the individual atoms of the gramicidin channel. The fundamental time increment in these calculations is 10^{-15} sec, so substantial computing resources are needed to reach even picoseconds. While such calculations are not likely to reach biological time scales for decades, they are needed to understand and choose the parameters of more classical models.

Drs. Eisenberg, Chen, Barcilon, and Ratner (Department of Chemistry, Northwestern University) are seeking a model between the atomic and classical. Building on Dr. Ratner's experience with crystalline channels, in physical materials, a stochastic differential equation is used to describe ionic motion in the open channel.

Drs. Levis, Eisenberg, and Lynn (Brookhaven National Laboratory) are seeking to improve the measurement of channels, using the techniques of high energy physics. A physicist recognizes a particle by the type of current it induces in a detector; a physiologist recognizes a channel by the type of current it passes into an

electrode. The problems of analyzing these small currents are quite similar, but and they seek to exploit these similarities to allow some use in biology of the resources devoted to high energy physics for many decades.

Dr. Eisenberg, John Tang, and Jinsong Wang continue their studies on the sarcoplasmic reticulum of skeletal muscle. They have developed a skinned preparation of the lobster remotor muscle (a preparation without a membrane) and shown that it has normal contractile properties. Thus, channels recorded from this preparation are in a more normal state than those subjected to extraction, purification, and reconstitution.

Dr. Eisenberg, John Tang, and Jinsong Wang have developed a system of microplumbing to allow easy change of solutions within a patch pipette (itself some 0.001 mm in diameter). Measurements with patch pipettes are made every day in hundreds, if not thousands of laboratories. If the solution changing technique is easy enough, it seems likely that many of these laboratories will adopt it.

Human Motor Control. The Motor Control Laboratory attempts, at a number of levels, to understand how the nervous system controls the many movements of the body. Even the seemingly simplest actions require the precise and coordinated activation of many muscles if our movements are to serve our wills.

One of the simplest questions to ask is how a limb is moved from one position to another. Drs. Gerald Gottlieb and Mark Latash in collaboration with the Departments of Neurosurgery and Neurological Sciences, are studying this problem in normal, young adults; in the healthy elderly, in children with Down's Syndrome or cerebral palsy and in adult patients suffering from Parkinson's Disease, head trauma, and seizure disorders. For several years subjects have been asked to simply flex their elbow, while seated in a special device that measures the motion and the forces of the limb. Even in this simple situation, healthy people can make movements in many different ways. They can move different distances, at different speeds, with different degrees of accuracy, with different profiles of acceleration and deceleration or with different loads on the limb.

Several other major lines of research in the laboratory include:

1). A study of kinematic, kinetic, and electromyographic variables recorded spastic patients during their attempts at simple, single-joint voluntary movements and during evoked pathological reflexes before and after intrathecal delivery of baclofen.

2). Joint compliance in healthy and neurologically impaired subjects are studied. Drs. Gottlieb and Latash examine both healthy subjects and patients with Parkinson's disease and with Down Syndrome.

3). Development and experimental testing of the Equilibrium-Point hypothesis of motor control. According to this hypothesis, control of a muscle can be described with only one variable: threshold of its length-sensitive reflex.

4). Theoretical and experimental analysis of motor variability using the framework of the Equilibrium-Point hypothesis is being used for testing some of the predictions of the hypothesis.

5). Effects of practice of fast single-joint movements in Down Syndrome individuals. Dr. Latash is interested in the general patterns of improvement in these subjects and in the possibility of transfer of the effects of practice. He would like to bring performance of these individuals as close to "normal" as possible.

6). Testing of muscle fatigue. An index of fatigue is being developed with standardized motor tasks and episodes of short electrical stimulations superimposed on different levels of muscle contraction. This task is planned to be used for testing patients with chronic fatigue syndrome and other central and peripheral disorders leading to apparently increased fatigability.

Drs. Gottlieb and Latash are also beginning to study movements that are not constrained to a single joint. Under a grant from the National Institutes of Health, a new Motion Analysis Lab is being set up to allow them to study natural limb movements without restraining devices. This will also enable them to study patients with more severe motor disabilities who are unable to use our elbow device.

Nerve sodium channel. Voltage gated ionic channels occur in the membranes of all nerve and muscle cells. They play a central role in generating and transmitting electrical signals over the surface of these cells. Briefly, such channels are intramembrane proteins which change their conformation in response to changes in cell membrane potential; specifically the conformation changes from one which does not permit ions to cross the membrane (the "closed" conformation) to a conformation which opens a channel or pore through which specific ions can freely move across the membrane (this is referred to as the "open" conformation). These proteins derive their sensitivity to membrane potential from the presence of charged groups which senses the field and move in response to transmembrane voltage changes; the movement of these charged groups somehow is linked to the series conformational changes that transform the

channel protein from its closed to open conformation. This movement of charge produces a small but measurable current which is referred to as a gating current. Drs. Richard Levis and Roman Shirokov in collaboration with Dr. Eduardo Rios are measuring the gating currents associated voltage sensitive sodium and calcium channels in isolated guinea pig ventricular myocytes using the whole cell variant of the patch voltage clamp. Macroscopic (i.e., arising from many channels) ionic currents from these channels are also examined in the same preparation. Preliminary patch clamp measurements of the small (about 1 picoampere) ionic currents through single calcium channels have also recently been undertaken by Dr. Levis. Both channel types are of great importance to the electrical and contractile behavior of the heart. The measurement of gating currents is of considerable significance since it provides a more direct measurement of the sequence of voltage-dependent conformational changes (including transitions between nonconducting conformations) leading to channel opening than can be provided by any other type of measurement. Particularly when correlated with ionic current measurements (single channel and macroscopic), such studies can greatly refine our understanding of the molecular mechanisms underlying voltage dependent gating of ionic channels.

One problem with the whole cell cardiac myocyte preparation is that it contains a variety of different channel types. The most numerous voltage dependent channels present are sodium and calcium channels (so named since the two types of channels are selectively permeable to these ions). Therefore, initial measurements of gating currents from cardiac myocytes were aimed at separating the total gating current into the components arising from sodium and calcium channels. This has been successfully accomplished using of voltage dependence, kinetics, and differential drug sensitivity. In all guinea pig ventricular myocytes it has been found that charge movement attributable to calcium channel gating is larger than that attributable to sodium channel gating. Moreover, it has been observed that in some 50% of the cells studied in this preparation sodium gating current accounts for less than about 10% of the total charge movement. This is fortunate in that it allows calcium gating currents to frequently be studied with minimal contamination from sodium channel gating. Recent experiments have concentrated on calcium channel gating currents and have studied shifts in the voltage dependence of these currents associated with channel inactivation and drugs such as D-600. It is felt that these results will place important

constraints on the types of models which can account for observed channel behavior.

Dr. Levis also maintains a continuing interest in refining the patch voltage clamp technique, particularly in the reduction of noise. His efforts in this regard are internationally recognized and have in recent years more than doubled the resolution attainable in practical measurement situations. His research in this area includes patch clamp electronics and theoretical and practical investigations of the noise properties, various types of glass used in the fabrication of patch pipettes, and of materials used in interfacing the electronics with the pipette. These efforts will be of considerable significance to the study of single calcium channel currents in heart since these currents are very small (typically < 1 pA) and transitions between the closed and open state of the channel can occur on a microsecond time scale.

Computer-Based Education. The "smart tutor" project, a collaborative effort between Drs. Joel Michael and Allen Rovick and Dr. Martha Evens, Illinois Institute of Technology, has continued making progress towards its goal of a computer tutor to assist students learning about the baroreceptor reflex. A screen manager (the handler of all student inputs and all computer outputs), natural language understander (accepts "ill-formed" student language) and a natural language text generator have been implemented and verified. A student modeler (which determines what the student knows or doesn't know) and the instructional planner (which generates teaching goals for the tutorial interaction and plans the lessons) are under development. A prototype tutor able to interact with students should be available by 1992. This work is now being carried out on an Apple Macintosh IIfx computer.

Analysis of face-to-face and keyboard-to-keyboard tutoring sessions continues; the language and knowledge of both student and tutor is being cataloged and tutoring rules are being derived.

An experiment was carried out in which 40 first year medical students, used the program CIRCSIM under a variety of conditions. Comparisons of pre- and post-tests show that this teaching program, does improve the students' ability to make predictions about the baroreceptor reflex.

Membrane properties of neurons and conduction of action potentials during demyelination. Studies in the laboratory of Fred Quandt are directed at examining the ion channels in neurons and excitability during demyelination. Many studies have suggested that

the symptoms associated with Multiple Sclerosis are due to conduction block in central nervous system axons secondary to the loss of myelin. Computer simulations are utilized to understand the limitations in the conduction of action potentials in neurons which occur following demyelination. For example, the frequency response of demyelinated fibers is reduced, compared to normal fibers. One new result from recent investigations is that the internodal conduction delay which occurs at the demyelinated internode slows repolarization of the invading action potential, increasing the refractory period. This effect appears to underlie the reduction in frequency response.

It is possible to overcome conduction block due to demyelination in an experimental preparation using drugs which increase the duration of the action potential. The agents used to prolong the action potential and overcome conduction block include K channel blockers, such as 4-aminopyridine (4-AP) and tetraethylammonium. The mechanisms of action of block by these K channel blockers are being studied in order to optimize this approach. For example, 4-AP may interact with the open or closed states of the channel to produce a blocked state. Experiments in the laboratory employ patch clamp techniques to record single K channels from neuroblastoma cell membranes. Recent work has focused on the action 4-AP. Dr. Quandt's laboratory has found that AP increases the duration of the nonconducting time of the channel in a concentration dependent manner and can reduce the probability of a conducting K channel by 50 % without a reduction in the open time. These observations suggest that the channel is not required to be gated open for block to occur.

The demyelinated internode of an axon is essentially an area of high conductance which can "short circuit" the action potential. Drs. Quandt and Jody Hirsh have been examining the membrane components responsible for the resting conductance of the nerve membrane by patch clamping neuroblastoma cells. They have found the presence of a cation conductance which contributes to the membrane current, but not by generating current jumps due to the opening and closing of a channel. The conductance decreases as the membrane is hyperpolarized due to a voltage-dependent block by Ca. The conductance explains depolarization of the membrane in low Ca. Additionally it may be a significant determinant of the electrical responses of mammalian neurons since it was found to have a very high temperature dependency.

Excitation Contraction Coupling. The transduction of action potential to muscle contraction (Excitation-Contraction or EC coupling) is an example of fast communication between cell membrane events and metabolic state. As in many systems, the central messenger of this coupling is calcium, which in muscle is released from the Sarcoplasmic Reticulum (SR) to activate contractile proteins. The release channels of the SR are controlled by changes in potential at the plasma and T tubular membrane. The long term goal of Dr. Eduardo Ríos laboratory is to understand this control.

Over the last few years, and thanks in part to work in this lab, the identity of two key molecular players, the *voltage sensor* of the T membrane and the *release channel* of the SR, became known. The central problem of EC coupling is to understand the interaction between the "DHPr" molecule (the voltage sensor) and the "RYr" molecule (release channel).

To attack this problem Dr. Ríos' laboratory uses a reductionist approach, studying the complete system and its parts. The complete system is the skeletal muscle fiber, in which they measure various manifestations of EC coupling, including: intramembrane charge movement (a manifestation of the voltage sensor) and Ca release flux. Measurement of these phenomena (carried out in collaboration with Dr. Adom González) showed a new phenomenon of *backward* transmission in EC coupling (Calcium release feeds back positively on the voltage sensor, constituting a self reinforcing loop).

To study the parts of the system separately, two preparations have been developed in this laboratory. 1) Single channel recording of individual voltage sensor molecules separated from muscle and incorporated in artificial lipid bilayers and 2) measurement of Ca channel gating currents in heart myocytes. All these manifestations arise from the function of similar molecules. A comparison of the properties of the molecules in a complete system the muscle fiber and when they are separated, will identify consequences of their interaction.

Preparation 1 above has been developed in Dr. Ríos' laboratory by Dr. Jianjie Ma. They have established for the purpose of studying these proteins in bilayers, a long term collaboration with Dr. M. Marlene Hosey, Professor of Pharmacology, Northwestern University, in whose laboratory the various muscle fractions are separated and proteins are purified. As additional results of this collaboration, they have found that phosphorylation catalyzed by protein kinases has consequences for the function of these channel proteins and voltage sensors.

Preparation 2 (isolated heart myocytes for the measurement of Ca gating currents) has been

developed in collaboration with Drs. R. Levis and R. Shirokov. In addition to its interest for the study of EC coupling in cardiac and heart muscle, this preparation has obvious importance for the study of fundamental properties of calcium channels, essential to the function of heart muscle and the nervous system.

Nonlinear chaotic dynamics. Much of physiological science concerns itself with the detection and analysis of "true signals" from out of the background of "noise". The problem, however, is that 1) some signals often look like noise; or 2) other signals are heavily

contaminated by noise. Dr. Joseph Zbilut in collaboration with Dr. Charles Webber, Jr. of Loyola University Medical Center, have been studying techniques which help elucidate these problems.

Also, in collaboration with Dr. Frederic Eldridge of the Physiology, Department of the University of North Carolina, Chapel Hill, they have been studying how noise may be important in controlling normal breathing.

A related problem involved quantifying noise in the electrocardiographic signal. With Dr. Thomas Buckingham, we have been evaluating this process in the signal-averaged ECG.



THE UNIVERSITY PROGRAM IN HUMANITIES



The University Program in Humanities

The University Program in Humanities housed in the Department of Religion, Health, and Human Values, aims to provide a context for healthcare education that serves the student in today's world, where cultural diversity is the norm, and where holistic practice is more and more imperative.

At Rush the humanities include ethics and law, history and philosophy of the professions, philosophy of science, literature and the arts. One of the few university-wide programs, The University Program in Humanities draws on the rich resources of the various colleges and their faculties to offer a wide array of lectures, workshops, courses, and events focusing on the human contexts of healthcare: medicine, nursing, basic sciences, and allied health.

The University Program in the Humanities administers the James A. Campbell, M.D. Distinguished Lecturer Program. Recent lecturers included pediatrician/author Perri Klass,

M.D., Arthur Frank, Ph.D., Paul Starr, Ph.D., Charles Rosenberg, Ph.D., and Michael Grodin, M.D. The program sponsors regular "Humanities Grand Rounds," "Occasional Seminars in Health and Human Values," and a "Healthcare Humanities Reading Group," as well as occasional reflections on theater performances, films, and art shows. Recent presentations, research, and publications by humanities faculty have focussed on (1) communication issues such as patient preferences regarding advanced directives, (2) the usefulness of theories from other disciplines, such as narrative theory and semeiotics, for investigating and modifying interactions between patients and healthcare professionals, and (3) the climate of professional training, such as the ethical investiture of medical students, the mentoring relationships between teacher and student, and the history of women in the healthcare professions.

The following courses have been selected by the faculty of The University Program in Humanities for inclusion as part of the curricular offerings of the humanities program.

Certificate sequence in Healthcare Ethics

- HHV 501 Introduction to Healthcare Ethics
- HHV 502 Major Issues in Healthcare Ethics
- HHV 503 Seminar in Healthcare Ethics

also

- BHV 473 Behavioral Science Mini-course: Law and Ethics in Clinical Medicine
- HHV 452 Introduction to Bioethics
- HHV 454 Death and Dying
- HHV 475 Suffering
- HHV 505 Goodness Knows: Ethics and Attitudes in Research
- HHV 510 Seminar in Health and Human Values
- HHV 576 Values and Power: Ethics for Healthcare Managers.
(also taught as HSM 576)
- NUR 402 Heritage of Nursing
- NUR 406 Nursing and the Human Condition
- NUR 407 Autonomy and Heteronomy
- NUR 583D Ethics in the Clinical Setting

COURSE DESCRIPTIONS

Although they usually follow a similar pattern, courses are listed alphabetical by course prefix not the descipline, following the scheme below:

ALT	ALTERNATIVE MEDICAL CURRICULUM
ANA	ANATOMY
BCH	BIOCHEMISTRY
BHV	BEHAVIORAL SCIENCES
CCS	CLINICAL CONCEPTS AND SKILLS
CEL	CELL BIOLOGY
DRM	DERMATOLOGY
FAM	FAMILY MEDICINE
HCE	HEALTH CARE EDUCATION
HEM	HEMATOLOGY
HHV	RELIGION HEALTH AND HUMAN VALUES
HSM	HEALTH SYSTEMS MANAGEMENT
HUM	HUMANITIES
IMM	IMMUNOLOGY
MED	INTERNAL MEDICINE
MIC	MICROBIOLOGY
MPH	MEDICAL PHYSICS
MTK	MEDICAL TECHNOLOGY
NAN	NURSING--ANESTHESIA
NEU	NEUROLOGICAL SCIENCES
NTR	CLINICAL NUTRITION
NUR	NURSING
OBG	OBSTETRICS AND GYNECOLOGY
OCC	OCCUPATIONAL THERAPY
PED	PEDIATRICS
PHR	PHARMACOLOGY
PHY	PHYSIOLOGY
PMR	PHYSICAL MEDICINE AND REHABILITATION
PPH	PATHOPHYSIOLOGY
PRF	PERFUSION TECHNOLOGY
PSC	PSYCHOLOGY
PSY	PSYCHIATRY
PTH	PATHOLOGY
PVM	PREVENTIVE MEDICINE
RAD	RADIOLOGY
SHS	SPEECH AND HEARING SCIENCES
SUR	SURGERY

Explanation of Course Descriptions

Discipline Abbreviations. Courses listed and described in this section have been approved by the several faculties of Rush University. Offerings for the 1992-93 academic year are listed in the *Timetable of Courses* published quarterly by the Office of the Registrar or the *Core Clerkship Handbook* and the *Elective Clerkship Handbook* published yearly by the Office of Clinical Curriculum of the medical college. The courses are listed alphabetically according to the discipline to which the course content is most closely related. These disciplines do not necessarily reflect a department in the University or in the Medical Center. A three-character abbreviation for the discipline precedes the course number for each course listed.

Course Numbers. A three-digit course number follows the course abbreviation. It indicates the level of offering for that course as shown below:

<u>Course Numbers</u>	<u>Level of Offering</u>
300-399	Undergraduate Third Level
400-449	Undergraduate Fourth Level
450-499	Dual Level--may be taken for undergraduate or graduate credit
500-599	Graduate Level
500-549	Master's Level (College of Nursing)
550-599	Doctor of Nursing Level (College of Nursing)
600	Post-Master's Level Residency
601-699	Doctoral Level

Course Content. A course title is followed by a brief description of course content and information pertaining to the course:

Course Prerequisites or Corequisites. Specific prerequisites are noted for some courses. Where no prerequisite is listed, it is assumed that students enrolling will have an adequate background on which to build. Students who have any questions about preparation should consult with the instructor of the course. If a corequisite is listed, that course must be taken either during the same term or prior to the course which has a corequisite.

Quarter in which course is given. FA(II), WI(nte), SP(ring), or SU(mmer) designates the quarter in which the course is offered each year.

Course credit. The number of quarter hours of credit for a course appears between parentheses. In many cases a series of three numbers is shown, e.g. (2-3-3). The first numbers refer to the hours per week of lecture or seminar; the second, to the number of hours in laboratory or clinical setting; the third, to quarter hours of credit. If any of these is variable, it is replaced with "v".

Clock hours (Rush Medical College). Clock hours appear between brackets. Since students in other colleges may cross-register for courses offered by Rush Medical College, the credit hour value of the course may also appear.

Clinical weeks (Rush Medical College). The number of weeks that students normally take each clinical course is indicated. These weeks also appear on the academic record.

Instructor. When known, the instructor's name is provided.

Independent Study Courses. Students may enroll in an independent study course in any discipline of the University under the direction of the appropriate faculty member with his/her written permission and the approval of the program director.

The course number 449 will be used for academic independent study for undergraduates and 599 for independent study for graduate students with the appropriate discipline prefix. Master's candidates in the College of Nursing use NUR 549.

ALTERNATIVE MEDICAL CURRICULUM

All alternative curriculum courses reflect the content of the regular medical curriculum for the first and second years. The format involves student-directed learning and group discussions. Only alternative curriculum students may take these courses.

ALT 451 Cellular/Molecular Biology. An integrated course with emphasis on the basic concepts and principles of biochemistry, immunology, and microbiology interwoven with a study of their clinical applications. FA (v) Bremer, Harrison, Schechter.

ALT 452 Anatomical Sciences. The structure and function of the human body are examined from the perspective of the anatomical sciences, interwoven with a study of the clinical applications of gross anatomy, microscopic anatomy and embryology. WI (v) Dinsmore.

ALT 453 Physiology and an Introduction to Pharmacology. An integrated course which emphasizes the processes and phenomena of organ systems, and an introduction to pharmacology principles with a special emphasis on the autonomic nervous system. interwoven with a study of their clinical applications. SP (v) Michael, Nora, Prancan.

ALT 464, 465, 466 Behavioral Science I, II, III. An overview of the biological, psychological and sociocultural explanations of human behavior as they relate to health care. FA WI SP (v) Zitter.

ALT 471 Epidemiology. A general survey of biostatistics and epidemiology. FA (v) Powell.

ALT 511, 512, 513, 514 Introduction to Patient I, II, III, IV. Clinical concepts and skills. Students learn to elicit a medical history and how to do a general screening examination. Skills are practiced on other students, simulated patients and patients. FA WI SP FA (v) Hoyer, Huber, Schwer.

ALT 515, 516 Introduction to Patient V, VI. Continuation of ALT 513 FA WI SP (v) Hoyer, Huber, Schwer.

ALT 531 Neurosciences. The neurosciences, including neuroanatomy, neurophysiology, neuropathology, and neuropharmacology. FA (v) Smith, Carvey.

ALT 532 Psychopathology. In depth study of psychopathology. WI (v) Bloom.

ALT 540 General Pathology. The general concepts of pathology are studied, including cell injury, inflammation and healing, immune responses, neoplasia, infectious processes, etc. FA (v) Loew.

ALT 541 Pathology, Pathophysiology, Pharmacology Block I. An integrated organ systems course with an emphasis on the concepts and principles of pathology, pathophysiology and pharmacology. WI (v) Hedberg, Nora, Loew.

ALT 542 Pathology, Pathophysiology, Pharmacology Block II. A continuation of ALT 541. SP (v) Hedberg, Nora, Loew.

ANATOMY

ANA 451 Histology. The microscopic anatomy of cells, tissues, and organ systems of the human body is studied through laboratories, lectures, and self-instructional material. Fine structural specializations relating to tissue function are emphasized along with the histological architecture that characterizes each. FA (3-4-5) [84 hours] Khodadad.

ANA 455 Neuroanatomy. The morphological organization of the central nervous system is explored through lectures, preceptorials, laboratory dissection, and microscopic examination of the human brain and spinal cord. Functional and clinical correlations are emphasized. (5-4-6) Kerns.

ANA 462 Introduction to Neurobiology. The development, morphology, and functional significance of the human nervous system are presented in lecture and by demonstrations. Fixed human brain preparations and series of neurological slides are used as visual aid materials. Prerequisite: courses in human biology or anatomy and physiology or comparative anatomy. Permission of instructor. WI (2-2-3) Kerns.

ANA 471 Human Anatomy I. The structure and function of the human body are examined topographically through laboratory dissection, lectures, and preceptorials. Laboratory dissection is conducted regionally, encompassing the thorax, abdomen, pelvis, perineum, head and neck, back, and extremities. Radiological anatomy, living anatomy, and clinical correlations are emphasized.

Embryology. The fundamentals of human development are examined from gametogenesis and fertilization through the formation and differentiation of the germ layers, organogenesis, and morphogenesis of the fetus. Congenital malformations and experimental embryology are introduced where feasible. FA (5-6-7) [109 hours] Schmidt.

ANA 472 Human Anatomy II. Continuation of ANA 471. Embryology is introduced where pertinent. WI (5-6-7) [90 hours] Schmidt.

ANA 501 Supplement to Histology. Discussion groups for graduate students based on ANA 451. FA (v-v-v)

ANA 502 Supplement to Neuroanatomy. Discussion groups for graduate students based on ANA 455. (v-v-v)

ANA 503 Supplement to Human Anatomy I. Discussion groups for graduate students based on ANA 471. FA (v-v-v)

ANA 504 Supplement to Human Anatomy II. Discussion groups for graduate students based on ANA 472. WI (v-v-v)

Course Descriptions

ANA 505 Supplement to Embryology. This supplemental course for graduate students focuses on, but is not limited to, human embryonic and fetal development. Selected readings will be assigned in coordination with student interests and the embryology sections of ANA 471, 472. FA WI (v-v-v)

ANA 511 Comparative Cytology of Tissues. Cellular structure will be studied in relation to the organization of selected tissues. Emphasis includes application of special techniques, and the evolution of contemporary views on structure and function. Prerequisite: ANA 451. Offered if there is enough demand. (3-0-3) Hughes.

ANA 513 Anatomy of the Eye. The histology and embryology of the eye will be reviewed in detail as the basis for discussion of selected topics. These will include: congenital malformations, physiology, and pharmacology of selected ocular systems; vessels and nerves of the orbit; and regional structure and function. Offered if there is enough demand. (4-0-4) Hughes.

ANA 521 Experimental Morphogenesis. Classical and contemporary studies of embryonic development and regeneration will be analyzed for common themes. With this foundation, students will be challenged to design experiments by which insight in differences and similarities between the paradigms may be further elucidated. Where feasible, the student may be invited to elaborate the experiment as an independent laboratory research project. Prerequisite: ANA 451. Offered if there is enough demand. (3-v-4) Dinsmore, Schmidt.

ANA 522 Tissue Repair Mechanisms. The ability of the several tissues of the vertebrate body to repair themselves is quite variable. The repair potential and mechanisms of each tissue will be considered separately and in detail through discussion of current journal articles. A final research paper on a selected area in this field is required. Prerequisite: ANA 451. Offered if there is enough demand. (3-0-3) Dinsmore, Schmidt.

ANA 531 Anatomy of the Synovial Joint. The gross and microscopic anatomy of the synovial joint will be examined in detail as a basis for discussion of selected topics. Topics will be arranged to meet individual student needs and may include: physiology and biochemistry of articular cartilage, subchondral bone, synovial membrane and other associated structures. Permission of instructor. Offered if there is enough demand. (v-v-v) Williams.

ANA 541 Topics in Muscle Biology. A seminar format will be employed for critical examination of papers relating to the biology of muscle in one of two areas: (1) current topics in excitation-contraction coupling, contractility, and energetics; or (2) review of the neuromuscular junction followed by examination of experimental systems dealing with the trophic maintenance and the development of muscle fiber types. Contributions of nerve injury to the pathogenesis of muscle disease will be considered. Permission of instructor. Offered if there is enough demand. (3-0-3) Hughes, Kerns.

ANA 560 Topics in Neurobiology. A seminar format will be utilized to review selected topics and original papers within one of the following units of study: neurogenesis, plasticity, synaptic organization of neural systems, or current methods in neuroanatomy research. Offered if there is enough demand. (4-0-4) Durica, Hughes, Jacob, Kerns.

ANA 565 Gross Anatomy for Occupational Therapy. The structure and function of the human body are examined through laboratory dissection, lectures, and tutorials. Special emphasis is placed on those body regions that are pertinent to the requirements of the Occupational Therapy profession. Laboratory and lecture exams are conducted on a regional basis and clinical correlations are emphasized. SU (v-v-5) Durica, Jacob.

ANA 581 Approaches and Methods in Morphologic Research. Study of how sources of information, methods of investigation, and technical procedures are applied to anatomic research. Demonstrations of techniques and student laboratory participation are included. Offered if there is enough demand. (2-4-4) Staff.

ANA 591 Preceptorials in Anatomy. Laboratory experience is provided in conjunction with related preceptorials on selected topics in the anatomical sciences. Prerequisites: ANA 451, 472. Offered if there is enough demand. (2-4-4) Staff.

ANA 592 Concepts in Morphology. Seminars and tutorials offered by faculty and guests on topics of special interest in the morphological sciences. Offered if there is enough demand. (v-v-v)

ANA 595 Journal Club. (v-v-v)

ANA 599 Independent Study. Selected topics in anatomical science. (v)

ANA 600 Thesis supervision. Supervision while student is writing the master's thesis following all required course work. Repeated until thesis is accepted for publishing. Student pays enrollment fee. No credit.

ANA 601 Surgical Anatomy. A laboratory program of regional dissections and demonstrations. The applied, clinical, and surgical aspects of anatomical regions are emphasized. Prerequisite: ANA 471-2 or equivalent. Offered if there is enough demand. (0-v-v) Doolas, Schmidt.

ANA 602 Advanced Anatomy. A laboratory program of special dissections and demonstrations on selected regions of the body: thorax, abdomen, pelvis and perineum, upper and lower extremities, and the CNS (spinal cord and brain). Prerequisites: ANA 451, 472, or equivalent. Offered if there is enough demand. (0-v-v) Schmidt.

ANA 699 Research. Research devoted to the preparation of a thesis in partial fulfillment of the requirements of the degree program. FA WI SP SU (0-v-v) Staff.

BIOCHEMISTRY

BCH 411, 412 Clinical Biochemistry I, II. Courses on the analytical and biochemical basis of methods used for chemical analysis of body fluids as related to diagnosis and treatment of disease. Topics discussed include blood sugar, carbohydrate tolerance tests, renal function tests, plasma electrolytes, blood gases, proteins, enzymes, liver function tests, cholesterol, and lipids. Critical evaluation of methods is emphasized. (4-0-4) (4-0-4)

BCH 413 Clinical Chemistry III. These tests and topics are covered: chemical hematology, special proteins, vitamins, biogenic amines, elementary toxicology, thyroid function tests, and steroid methods. Principles underlying automated and computer application methods will be discussed. Prerequisites: Biochemistry 411, 412. (3-0-3)

BCH 471 Medical Biochemistry I. Biochemistry of biologically important compounds and molecular biology. FA (6) [65] Bezkorovainy.

BCH 472 Medical Biochemistry II. Metabolism and nutrition. WI (5) [50] Bezkorovainy.

BCH 475 Biochemistry Review. A review of content covered in Medical Biochemistry. Offered only in summer quarter. SU (4) Bezkorovainy.

BCH 505 Advanced Biochemistry. Continuation of BCH 471 and 472, for graduate students only. SP (6) Homandberg.

BCH 581 Biochemical Research Techniques. FA (4) Thonar.

BCH 582 Biochemical Methodology. Continuation of BCH 581. WI (4) Thonar.

BCH 585 Extramural Research. An 8-10 week (usually spring quarter) experience at an industrial research laboratory in Europe or the U.S. The student will focus on major and minor research areas. Assigned reading, a final examination and a written report are required. SP (5)

BCH 595 Journal Club. Discussion of current journal articles. FA WI SP (2) Hayashi.

BCH 597 Seminar. FA WI SP (1) Aydelotte.

BCH 599 Independent Study. (v)

BCH 624 Connective Tissue Biochemistry. FA (3) Schmidt.

BCH 631 Supramolecular Biochemistry. WI (3) C. Knudson.

BCH 651 Science and the Law. Substantive law in the areas of products liability, professional malpractice, food and drug law, patents, forensics, evidence and other areas. SP or SU (2) Bezkorovainy.

BCH 690 Minicourses. (1)

BCH 698 Introduction to Research. FA WI (1) C. Knudson.

BCH 699 Research in Biochemistry. (v)

BEHAVIORAL SCIENCES

BHV 451 Fundamentals of Behavior. During the first five weeks, a series of lectures provide the basic conceptual framework and terminology used to describe and explain human behavior in three areas: biological, psychological, and sociocultural. Primary emphasis throughout is on the ways such types of influences affect the lives of patients. WI [22 hours] Cella.

BHV 452 Ethics and Law in Medicine. Introduction to the interface between legal and ethical issues in medical practice. Includes malpractice, civil procedure and documentation, advance directives, confidentiality, ethical theory and principles of ethics. Emphasis on cases and small group discussion. WI [20 hours] M.Brown, Burton.

BHV 453 Behavior in the Life Cycle. Introduction to a clinically based study of the individual life cycle. Emphasis is on the provision of a normative account of development from physical, psychosocial, and sociological perspectives. During the second five weeks of the quarter students choose one special topic seminar (BHV 473). SP [28 hours] Cella.

BHV 461 The Family, Health, and Literature. Principles and dynamics of family health are presented. Selected works of fiction are used to illustrate concepts. (3-0-3)

BHV 473 Behavioral Science Minicourses. A matrix of special topic seminars which allows a concentrated introduction to a significant area of behavioral study. The following descriptions, presented in recent years, are typical of those presented each year. (1) [10 hours]

The Human Side of HIV/AIDS. This course is designed to provide a personal understanding of those most affected by this illness: persons living with HIV and AIDS, their families, loved ones, and the many different kinds of caregivers who help them. Our object is to offer an expanded awareness of the caregiver's role in treating people from different backgrounds, cultures and sexual preferences. This will be accomplished incorporating human interaction with readings, visual materials, field trips, and group discussion.

Human Sexuality. As with other areas of health care, public expectations for better sexual health have increasingly pushed the medical profession to deliver more comprehensive care. Sexual problems are to be found routinely among the patients in physicians' offices. Very often those patients will first seek medical consultation. This course will review several aspects of human sexuality including the sexual response in men and women, taking a sex history in clinical practice, sex and medical illness, and basic aspects of sex therapy in general practice. Through the use of videotapes, films, assigned readings, and discussion, this seminar will attempt to help the prospective physician provide better care to those patients who either

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present themselves with sexual problems, or in whom sexual difficulties are uncovered. Grades will be based on class participation and a brief paper.

Obesity, Eating Disorders and Weight Management.

This course will cover the epidemiology, genetics, physiological, social, and psychological aspects of obesity. Students will learn the current dietary, behavioral, and exercise approaches to weight reduction as well as the new natural eating alternative. Health risks associated with obesity, excessive thinness, and restrictive dieting are presented. The course has now been expanded to include material on eating disorders, anorexia and bulimia, and the psychodevelopmental model of understanding the psychopathology of an eating disorder. Current approaches to treating eating disorders are discussed including the Adolescent and Young Adult Eating Disorders Program at RPSLMC. Grades will be based on class participation and brief take-home quiz.

Sleep Disorders Across the Life Cycle. This course will explore the common sleep problems of children, adolescents, young adults and the elderly using case study examples of nightmarers and sleep terror patients, narcoleptics, phase delayed sleepers, insomniacs due to anxiety, and patients with day time sleepiness due to sleep apnea or depression. Special emphasis will be placed on students' sleep.

Pain. Pain is a symptom that is commonly presented and its alleviation is often a primary goal of treatment. At the same time, pain is often not obviously related to physical disease processes and may be a complication of treatment. This course will discuss concepts of pain, factors affecting its report by patients, and its role in various disorders. Grades will be based on class participation and a brief paper.

Neurobehavioral Disorders. This course will examine those diseases in which either damage or dysfunction of the brain is manifested for the most part by an alteration in behavior. It also examines what these diseases and injuries teach us about brain function. The topics include: aphasia, dementia, corpus callosum surgery, closed head injury and learning disabilities. Grades will be based on class participation and a take-home examination.

Death and Dying. This course will examine significant psychosocial issues in the care of the dying and their families. Issues will include: caregivers' personal death awareness and its effects on their caregiving; question of "stages;" effective counseling with dying persons and their families; cross-cultural concerns; and suicide. Short stories, video, poems, and other literary forms will be assigned.

Narrative and Medicine. Patients, families and healthcare personnel talk about illness and suffering by telling stories. According to Arthur Kleinman, M.D., "There is a moral core to healing in all societies that I take to be the central purpose of medicine....the experience and meanings of illness are at the center of clinical practice. The purpose of medicine is both control of the disease process and care for the illness experience." This course is designed to introduce health care professionals to the

way in which the sick person's "life story" differs from "case history", and how an understanding of the "life story" is crucial to medical care. The implicit assumption is that if your feelings and beliefs, as well as our experience, influence our health, then health professionals need to pay close attention to the individual's life history and subjective experience, and to acknowledge the tendency of the system to fragment, depersonalize, and even distort the sick person's experience. The primary texts for this course will be *The Illness Narratives* by Arthur Kleinman, M.D.

BHV 520 Growth and Development in Children and Adolescents. An overview is presented of models and theories of development during childhood and adolescence. Biophysical, cognitive, emotional, and moral developmental theories are examined. Current research in the developmental and nursing literature is criticized for relevance to health promotion of children and adolescents. (3-0-3)

BHV 521 Adult Development. A critical examination of classic and contemporary theories of adult development is presented. (3-0-3)

BHV 522 Family Development Throughout the Lifespan. The development and evolution of families throughout the life cycle is presented. Research methods used to study family process are discussed. (3-0-3)

BHV 523 Psychosocial Topics in Women's Health. An interdisciplinary inquiry into the theories, research, and methodologies concerning selected experiences of women as both primary and secondary consumers of health care. Prerequisite: NUR 521 or equivalent, or Consent of Instructor. (3-0-3)

BHV 525 Crises Theory and Intervention. Theoretical models and research related to crisis intervention in health care are discussed. (2-0-2)

BHV 526 Dynamics of Small Groups. Focus is on current theory and research on small group dynamics as a basis for interventions in groups with clinical, educational, or managerial tasks. (3-0-3)

BHV 527 Creative Methods to Enhance Clinical Practice. Participants will acquire a variety of new skills to enhance psychosocial assessments, increase the effectiveness of patient teaching, and enrich individual and group psychotherapy. (3-0-3)

BHV 528 Major Psychopathological Disorders: Theory, Treatment and Research. Major forms of mental illness and the management of behaviors related to mental illness is studied. (3-0-3)

BHV 529 Coping, Stress, and Adaptation to Illness and Disability. Major theories and concepts that explain how people learn to cope with stress, illness, and/or disability are examined. (3-0-3)

BHV 531 A.I.D.S. and the Social Sciences. An examination of the current research related to the cultural, developmental, and epidemiological aspects of HIV infection. Issues regarding education, prevention, and

behavioral change to reduce the risk of HIV infection in various populations is addressed. (2-0-2)

BHV 533 Foundation of Mental Health in Early Childhood. Focus is on assessment of normal and high risk parent infant relationships and interventions with families whose infants are at risk for attachment disorders. (2-0-2)

BHV 541 Inpatient Psychiatry and the Search for Theory Based Practice. Emphasizes the theories and research supporting the practice of inpatient psychiatry. Milieu theory is examined along with its usefulness in directing treatment. Future trends in inpatient psychiatry are formulated in light of social policy and theory development. (2 or 3)

BHV 543 Observation and Communication. Introduction to the interview technique and process--the interview as a tool that facilitates the doctor-patient relationship and produces reliable and valid medical information. Interview theory, determinants of patient behavior and practice of interview skills are included. Seminars use videotapes. Prerequisite: BHV 451. WI [28 hours] Leavitt.

BHV 553 The Older Adult. Changing demographics of an aging population and major issues confronting aging persons are discussed. The impact of an aging society on social and health policy is explored. Prerequisite: BHV 521 or consent of instructor. (3-0-3)

CLINICAL CONCEPTS AND SKILLS

CCS 501, 502, 503 Clinical Concepts and Skills I, II, III. A comprehensive introduction to clinical medicine utilizing the resources of the Medical Center and the Rush network hospitals. Studies are primarily tutorial, but texts, audiovisual, and mechanical aids are available for self-study. Initially, students work with instructors and peers, learning to elicit a history and do a general screening examination. This is followed by extensive experience working with patients under the supervision of practicing physicians, with emphasis on eliciting historical information and gaining experience in physical examination techniques. Demonstration of pathological abnormalities and clinical pathological correlations are emphasized. Taught over three terms. [136 hours] McLaughlin, Douglas.

CCS 611 Computer Literacy. This medical computing elective includes an overview of computer system components, functions, and environments; practice in microcomputer applications such as word processing, communication, information retrieval and data base management; computer and software selection; medical computing in the patient care system, office practice, clinical decisions, patient monitoring, and medical research. Experience will include lecture/discussion, hands-on experience, site visits, and projects. Prerequisites: MED 601, SUR 601. [4 weeks, offered in April and September] Moore.

CELL BIOLOGY

CEL 502 Molecular Cell Biology. An examination of the molecular basis of the structure and function of eukaryotic cells. WI (4-0-4) R. Zimmerman.

CEL 522 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix, and imbed tissue and learn the use of the electron microscope. Students are especially encouraged to consult with faculty on the incorporation of their particular research system into the course exercises. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. Alt. SP (0-8-4) R. Zimmerman.

CEL 531 Nonradioactive Techniques in Molecular Biology. The two objectives of this course are: to provide an introduction to basic techniques of molecular biology to students who might not otherwise have access to laboratory training, and to provide training in non-radioactive alternative labelling techniques that have safety and cost advantages over more traditional approaches. Alt. SP (0-8-4) Zimmerman.

Note: CEL 522 will be given in even numbered SP (92, 94,...) alternating with CEL 531 given in odd numbered years (93, 95,...)

CEL 541 Molecular Neurobiology. Basic principles of molecular biology discussed in the context of the function, structure, development and degeneration of neurons. The conceptual foundations of common techniques will be emphasized. SP (2-0-2) R. Zimmerman.

CEL 599 Independent Study. (v-v-v)

CEL 612 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix and imbed tissue and learn the use of the electron microscope. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. [2 weeks] R. Zimmerman.

DERMATOLOGY

DRM 616 Dermatology. Dermatological problems are studied under the direct supervision of the departmental staff; diseases are considered from the standpoint of etiology, pathogenesis, diagnosis, course, and treatment. Skin biopsy applications and techniques as well as histopathologic interpretation are emphasized. Skin therapeutics are taught, stressing biochemical and physiological considerations. Prerequisite: fourth year status. FA WI SP SU [4 weeks] Pearson.

FAMILY MEDICINE

FAM 601 Core Clerkship in Family Medicine. An intense ambulatory experience in family medicine. Students see patients initially and formulate their assessments and plans under supervision of senior residents and attendings. Participation in comprehensive, longitudinal care is stressed. The common problems and

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responsibilities of a primary care physician are observed and taught. A lecture series and syllabus supplement the clinical experience. Two skills laboratories cover casting, suturing, and proctosigmoidoscopy. Diagnosis and treatment of alcoholism are also emphasized. Prerequisite: MED 503. FA WI SP SU [4 weeks] Vanderberg-Dent.

FAM 610 Family Medicine Subinternship. An intensive primary care experience at either Christ or MacNeal Hospitals. The subintern will function in a capacity similar to an intern, with supervision by a senior resident and faculty physician. Prerequisite: FAM 601, MED 601, PED 601, SUR 601. FA WI SP SU [4 weeks] Schwer (Christ), Tenzer (MacNeal).

FAM 621 Emergency Medicine-Christ Hospital. Students encounter a broad range of emergency problems in all areas of this large emergency service. The student will evaluate and manage patients under the direction of emergency medicine faculty and residents. Students will rotate through weekend and night shifts (four 10 hour shifts per week). Clerkship may not be dropped with eight weeks of the start date. Course director approval required. Prerequisites: All core clerkships. FA WI SP SU (except July) [4 weeks] Feldman.

FAM 624 Inpatient Family Medicine - West Suburban Hospital. Students work with attending family physicians who admit their patients to the West Suburban Hospital Family Practice teaching service, as well as with the second-year resident assigned to the service. Students will be responsible for comprehensive management of patients he/she admits under the guidance of the resident and attendings. Course director approval at least eight weeks in advance. Prerequisites: FAM 601, MED 601. FA WI SP SU [4 weeks] LaRoy.

FAM 625 Alcoholism Chemical Dependency Unit. Students develop skills in intervening and managing alcoholic and other chemically dependent patients. A longitudinal interdisciplinary experience is stressed, emphasizing detoxification, rehabilitation, and outpatient treatment. Offered at Hinsdale and MacNeal Hospitals. Course director approval at least four weeks in advance. Prerequisite: FAM 601. FA WI SP SU [2-4 weeks] Ready, Wainer, Feldman.

FAM 631 Stress and Illness in an Ambulatory Setting. This is a preceptorship with an experienced clinical psychologist at the Christ Hospital Family Practice Center, seeing patients referred by the residents and faculty of the Center. Clinical problems encountered include stress management, depression, eating disorders, and family counseling. Course director approval at least four weeks in advance. FA WI SP SU [2 weeks] Zitter.

FAM 641 Urban Primary Care. A preceptorship with a family physician in an urban solo practice, emphasizing preventive health care and the impact of environmental factors upon health care delivery. Course director approval at least four weeks in advance. Prerequisite: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Rothschild.

FAM 642 Community Medicine - Stickney Clinic. A broad-based ambulatory care preceptorship in a community-funded health clinic, serving the primary care needs of southwest suburban Stickney Township. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Largosa.

FAM 643 ANCHOR HMO Primary Care Preceptorship. A preceptorship with a family physician in practice in a prepaid group medical practice (health maintenance organization). Emphasis will be upon preventive, comprehensive health care and upon understanding unique aspects of voluntary prepaid health care. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] McHugh.

FAM 644 Preceptorship in Holistic Health Care Center. The student will work with a health care team comprised of a family physician, nurse, and pastoral counselor. There will be participation in the health care of patients, encompassing medical, psychological, and spiritual issues. There is a particular emphasis upon wellness promotion and comprehensive health planning. Course director approval at least four weeks in advance. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Humowiecki.

FAM 645 Suburban Private Practice - Oak Lawn. A preceptorship with an experienced family physician, both at his office in southwest Chicago and at Christ Hospital. The student will work in all areas of a busy physician's practice. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] O'Neill.

FAM 651 Rural Primary Care - Streator. A preceptorship with an experienced family physician in Streator, Illinois, a town of 15,000 persons 90 miles southwest of Chicago. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Gottemoller.

FAM 652 Rural Primary Care - Galesburg. A preceptorship with an experienced family physician in the small town of Galesburg, Illinois. Emphasis will be upon the practice of primary care in a rural setting, including use of both local and remote consultative services and community involvement of the physician. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Currie.

FAM 652 Rural Primary Care - Sycamore. A preceptorship with a family physician group in a small community near DeKalb, Illinois. A full range of family medicine, including obstetrics, is practiced by this group. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Hirsch.

FAM 671 Sports Medicine. An opportunity for in depth exposure to the preparcipation examination and care of the athlete. Students will work well fortified in the disciplines of family medicine and orthopedics. Student must have car. Approval through the course directors office required. Prerequisites: FAM 601, prior orthopedics experience preferred. FA WI SP SU [4 weeks] Davison.

HEALTH CARE EDUCATION

HCE 454 Development of Instructional Media. An overview of communication theory and its relationship to the communication process is used by students to design an instructional media program for a specific target audience. (2-0-2)

HCE 522 Production of a Media Presentation. Under the guidance of biomedical communications staff, the student will coordinate and perform all activities relating to the production of a media presentation. The student is expected to use the finished product to provide information or instruction for a specific target audience. (2)

HCE 533 Introduction to Instructional Design in the Health Sciences. The student will develop a basic understanding of the learning process by preparing a teaching unit in a content area of choice for a specified group of learners; by relating selected principles of learning to adults; and by evaluating teaching effectiveness. (3-0-3)

HCE 581 Introduction to Research. The student develops skill in critically analyzing research studies, formulating research problems, designing research methods, using descriptive and inferential statistics to interpret data, analyzing data using parametric and nonparametric statistical models, and developing beginning competencies in the use of computers in research. (3-3-4)

HEMATOLOGY

HEM 301 Hematology I. Study of normal hematopoiesis including development, metabolism, kinetics, and function of red cells, white cells, and platelets and an introduction to the various associated hematologic disorders. Fundamentals of hemostasis, including coagulation pathways and laboratory procedures which evaluate these mechanisms are covered. Includes laboratory experiences dealing with basic routine tests performed in a clinical hematology laboratory, such as simple automated cell counting, blood smear morphology, and reticulocyte counts. (3-12-6)

HEM 425 Hematology II. Review of normal hematopoiesis and an in-depth study of erythrocyte disorders, their etiologies, pathophysiology, clinical features, and significant laboratory findings. Prerequisite: Hematology 301. (2-0-2)

HEM 426 Hematology III. Continuation of HEM 425 with an in-depth study of leukocyte disorders, their etiologies, pathophysiology, clinical features, and significant laboratory findings. Prerequisite: HEM 425. (2-0-2)

RELIGION, HEALTH AND HUMAN VALUES

HHV 451 Introduction to Religion and Health. This course examines religion in human experience; the use of ritual, symbol and story linking human experience with constructions of the Ultimate; as marker or life cycle passages; and as help and hindrance in illness, suffering and death. (2-0-2) Burck.

HHV 452 Introduction to Bioethics. Directed especially to nursing and allied health students, this course uses a case method to examine moral theories, differences in decision-making processes, methodology in terms of basic issues in bioethics and professional practice. (2-0-2) Burck, Bosek.

HHV 453 Illness and Faith. An examination of patients' understanding of body, time, shame, community, the self, sacrifice and suffering, religious resources, and the relationship between God and illness in light of personal faith. Employs seminar method and some clinical materials. (2-0-2) Burck.

HHV 454 Health, Illness and Human Values. This course explores the relationship of patient responses to illness (which vary according to values-related factors such as ethnicity, gender, family structure, and belief systems) to the healthcare system (structures and providers). It also looks at the philosophical category of epistemology and the idea of the social construction of reality as a way of conceptualizing differing illness beliefs/behaviors. (2-0-2) Burton.

HHV 464 Death and Dying. Examines central/major issues dying persons face and ways they face them, exploring narratives of dying persons, their families and those who care for them. Compares theories about the experience of dying, caregivers' personal death awareness and selected ethical issues. (2-0-2) Burton.

HHV 465 Death and Dying in Literature. Drawing on classical and contemporary literature, this course will consider various literary portrayals of death, dying and bereavement; the meanings of death in the life of the family and the society and themes of pain, suffering, courage, resolutions of conflict and life in the face of death. (2-0-2) Burck, O'Reilly.

HHV 470 Assessment of Patient Spirituality. A survey of various models of spiritual assessment, their strengths and weaknesses; overview of research related to each; field experience with selected models; development of comprehensive model of spiritual assessment and implications for clinical practice. (2-1-2) Fitchett.

HHV 475 Suffering Means...? This course examines the issue of suffering by studying the claims and contributions of various belief systems. A narrative approach to the subject will be used, and autobiographical and family stories, interviews with patients as well as excerpts from literature, drama and film will be used to illustrate various meanings. (2-0-2) O'Reilly.

HHV 480 Seminar in Healthcare and Popular Culture. Through the use of popular TV programs, movies, novels and cartoons, this course will examine the theme of the relationship between humankind and technology to healthcare in American culture. (2-0-2) O'Reilly, Burton.

HHV 485 The Human Body: A Work of Art. Drawing on portrayals of the human body by artists down through the centuries, this course will consider images of ideal beauty, understandings of pain, as well as perspectives on power, change, the human condition, and sexuality. The

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interface between these artistic themes and the sphere of medicine will be examined. (2-0-2) O'Reilly.

HHV 501 Introduction to Healthcare Ethics. This interdisciplinary course considers representative foundational theories of ethics, religious perspectives, and methodology, as well as selected issues such as paternalism vs. enhancement of patients' autonomy; justice; beneficence vs. nonmaleficence; legal issues, public policy. (3-1-3) Burck, Sheldon.

HHV 502 Major Issues in Healthcare Ethics. The focus in the course is on "End of Life--Ending Life" with topics such as advance directives, DNR's, withholding and withdrawing treatment, treatment decisions and ethics, PVS, brain death, euthanasia, allocation, etc. Both ethical and legal perspectives are considered. Prerequisite HHV 501. (3-1-3) Burck, Sheldon.

HHV 503 Seminar in Healthcare Ethics. Students present a major seminar paper on an approved topic in clinical healthcare ethics, and lead discussion around the issue. Prerequisite HHV 502. (3-1-3) Burck, Sheldon.

HHV 505 Ethics in Research. A seminar course with guest speakers covering controversial issues regarding scientific misconduct, authorship, disputes, collaboration in research projects, student/fellow-advisor relationships, bias in data interpretation, whistleblowing, the grants game, biopolitics, and the status of women and minorities in biomedical research. In short--a survival guide for the beginning research professional. FA (1-0-1) Burck, Lint.

HHV 510 Seminar in Health and Human Values. Interdisciplinary seminar integrating the written, visual and performing arts with philosophical and clinical issues and approaches to healthcare. (2-0-2) Staff.

HHV 524 Healing Women and the Healthcare System. An examination of the issues related to the assessment of women as patients and as caregivers; how the assessment influences goals and approaches to patient and family care; the historical impact on today's healthcare system. The purpose of the course is to provide each of its participants with a fuller understanding of gender differences so that the care offered to and by them may contribute to greater wholeness and healing. (2-0-2) O'Reilly.

HHV 576 Values and Power: Ethics for Healthcare Managers. Considers questions such as what is ethics? What are the basic ethical questions healthcare managers will encounter? What are the ethical responsibilities of the healthcare manager? What are the manager's responsibilities for providing an environment in which others can exercise their ethical responsibilities? Same as HSM 576. (3-0-3) Burck, Staff.

HHV 601 Perspectives on Healthcare Ethics. This interdisciplinary course is divided into three parts: an intensive introduction to ethical theories and methodologies; a review of law, ethics and medicine; and a case-oriented focus on specific issues in healthcare ethics. In addition, the impact of ethnicity, religion, class, and gender on moral decision-making will be considered. Prerequisite:

admission to doctoral program. (4-0-4) Burck, Burton, Brown, Bosek.

HHV 611 Clinical Medical Ethics. As an expression of profound commitments to human well-being, the powers, privileges, and responsibilities of medical practice have always engaged ethical interest and inquiry. Today more than ever, physicians are faced with situations that challenge standards of practice and require new moral analysis. Tomorrow's physicians will need to be able to carry out basic moral assessments of their work and to know how to use ethics consultations. Medical students presently encounter moral issues in medical practice through minicourses, explicit attention in come clinical rotations, and struggles associated with clinical decisions. This clerkship will enable students to explore issues in clinical ethics more deeply as they prepare for residencies and practice. This clerkship offers an intensive hands-on experience, under the supervision of seasoned clinical ethicists, through which students can explore their own more context, more reasoning, and ability to conduct moral analysis in the context of clinical medicine. FA WI SP SU [4 weeks] Burck.

HHV 699 Directed Reading and Research in Religion, Health and Human Values. Individual projects under the supervision of a faculty member. (arranged) Staff.

HEALTH SYSTEMS MANAGEMENT

NOTE: Faculty from several programs at Rush offer HSM courses. Some HSM courses are limited or directed to students in specific programs. Additional information regarding enrollment restrictions is available in the quarterly *Timetable of Courses*.

HSM 401 Health Care Management. Organizational design and managerial processes of planning, organizing, directing and controlling a clinical laboratory, as well as the dynamics of managerial jobs are studied. Emphasis is on management strategies and techniques in the area of health care delivery. This course utilizes the educational method of problem based learning. (3-0-3)

HSM 502 Health Care Organization I. This course is intended to provide students with a learning structure that enables them to become reasonably well versed in the factors, forces and dynamics of both the macro and micro environments in which various health care institutions operate. The interrelationships among various trends and forces likely to shape the roles and responsibilities of health care institutions in future years will be stressed. (4-0-4) Knepper.

HSM 503 Health Care Organization II. This course designed to provide students with a comprehensive working knowledge of the institutional perspective of health services management and dynamics of the health financing, policy and system performance arenas in which various health care institutions operate. Students will become familiar with key provider groups, the organization of financing, health information sources, health policy and regulation, quality assessment/assurance and system performance issues. (1-0-1) Sochacki.

HSM 506 Medical Sociology. An examination of the sociological, psychological, and behavioral dynamics of practitioners and groups within the health care delivery system. (3-0-3) Counte, Bliss.

HSM 507 Epidemiology. An understanding of the principles and methodologies of epidemiology, research design, and program evaluation emphasizing application to the planning and management of health care services. (4-0-4) Oleske.

HSM 515 Human Resources Management I. An understanding of the human relations skills required of the health systems manager in an environment filled with both federal and state legal constraints. Skills acquired include motivating employees, appraising performance, dealing with disciplinary problems, and employee counseling. (4-0-4) Hill.

HSM 516 Human Resources Management II. Examination of the labor-management relationship including the employment and labor laws impacting on both the union and nonunion work force. Provides an understanding of the unions prevalent in health care, strategies in confronting an organizing campaign, the processes of collective bargaining, and effective contract administration. SP SU (3-0-3) Hill.

HSM 522 Multi-Institutional Arrangements. An analysis of goals and organizational structures of multihospital systems and an understanding of causes for this trend, barriers to development, advantages/disadvantages and future trends. (3-0-3) Miller.

HSM 531 Finance I. Understanding the concepts and principles of accounting and finances and their application in health systems management. (4-0-4) Gasbarra.

HSM 532 Finance II. Provides an understanding and knowledge of health care services payment policies including sources of payment, (e.g., Medicare, Medicaid, Blue Cross) emerging payment arrangements, e.g., DRGs, PPOs, HMOs and the application of budgeting principles to health care institutions. (3-0-3) Jendro.

HSM 533 Health Economics. Application of economic tools and theories to the delivery of health care services. (4-0-4) Glandon.

HSM 534 Applied Economics I: Economics of Technology. This course will present the basic theory of technology evaluation as applied to the health care system. It will present and summarize the techniques developed in prior courses and analyze applications to medical and managerial technologies in health care. (3-0-3) Glandon.

HSM 535 Applied Economics II: Regulation and Public Policy. The current theories and empirical tests of the effects of regulation in the health care system will be presented and analyzed. Applications will focus on the influence of regulation on health services management with special emphasis on future regulatory actions and their impacts. (3-0-3) Kaatz.

HSM 536 Corporate Finance. Provides the financial tools and ability to understand the principle issues of corporate finance and financial management. This course shifts the student's focus from a micro to macro or corporate view of financial management. The overall objectives of the course are to understand the roles, functions and responsibilities of financial officers in managing a health care institution; be able to identify and analyze corporate finance problems and issues in the management of health care institutions and be able to evaluate the financial performance of institutions in asset and debt management. (3-0-3) Kovel.

HSM 539 Finance Seminar. The application of knowledge and skills acquired in the Health Systems Management finance course and the integration of decision-making processes. Students make strategic planning, staffing, capital financing, pricing, and cash management decisions for a hospital under changing environmental trends and payment policies. These decisions will affect the hospital's financial position relative to other hospitals in the community through a computer simulation model. (3-0-3) Greenstein, Jellinek.

HSM 543 Health Law. Provides a systematic and comprehensive knowledge of law as it impacts health care delivery systems. Students acquire an understanding of contract law, tort law, corporate law, labor law, and civil procedure. (4-0-4) Brown, Rice.

HSM 545 Organizational Analysis. An introduction to the study of organizations, including structures, processes, and human behavior. This course focuses on theories and concepts in such areas as organizational research, motivation, stress, leadership, group dynamics, roles, decision making, technology, communication, ethics, and change. (4-0-4) Hodo.

HSM 545 Advanced Organizational Analysis. The student will examine several comprehensive theories of organization and environment and extract from them practical management tools that can be applied to any management setting. Topics covered are: Structure and Technology; Culture and Innovation; Environment and Strategic Choice. (4-0-4) Counte, Short.

HSM 551 Information Systems I. Basic information systems concepts are presented such as: systems theory, systems analysis, fundamental information systems concepts (in the areas of hardware, software, and personnel), fundamentals of information systems management and the systems life cycle. (4-0-4) Buck, Bee.

HSM 552 Information Systems II. This course will concentrate on intermediate to advanced concepts of information systems. Specific topics may include: information systems resource management, cost/benefit analysis, overview of information system topology, technology assessment and strategic planning. (4-0-4) Rose, Odwazny.

HSM 553 Advanced Information Systems. Advanced topics and concepts of information systems concentrating on specific application within health care including

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administrative, financial, clinical, and departmental. (3-0-3).

HSM 555 Health Care and the Elderly. This course gives students an understanding of the demographics of the elderly population, the aging process and the impact of legislation on development of a long-term care system will be the basis for the building of a model care system for the elderly. Social policy issues in the United States and other western countries will be addressed by health care providers as well as by the elderly and their families. (3-0-3) Counte, Glandon, Heelan.

HSM 556 Group Practice Management. This course focuses on the analysis of problems in a health care provider setting and the application of systems techniques to resolve these problems. The course will allow students to gain familiarity through theory and practicum, with a small business environment presented as a physician group practice client site. (3-0-3)

HSM 557 Quality Assurance in Health Care. This course will provide the student with a comprehensive overview of the major components of a quality assurance program in various health care delivery settings, such as hospitals, mental health centers, HMOs and ambulatory care and long-term care institutions. (3-0-3) Terman.

HSM 558 Ambulatory Care. An overview of ambulatory health systems, marketing and management techniques, and professional and administrative issues. (3-0-3) Bliss, Hinrichs.

HSM 560 Health Care Policy: Formulation, Implementation and Evaluation. The topics covered will be health policy as part of the environment for providers, processes by which providers can influence policy formation, some methods of policy analyses, and pertinent recent history and relevant trends. (3-0-3) Shannon.

HSM 561 Strategic Planning. This course will provide an understanding and knowledge of strategic planning and budgeting for health care institutions. Approaches to developing strategic and operational plans will be explored. The basic accounting concepts learned in Finance I will be translated into specific financial applications and management decisions via the budgeting process. (3-0-3) Douglass.

HSM 562 Marketing Management. An understanding and working knowledge of marketing theory, terminology, techniques, and analytical approaches for marketing health services. (4-0-4) Carollo.

HSM 567 Managed Care. An examination of managed care organizations in theory and practice. The variations in model types and external forces affecting their development and operational strategy will be explored. (3-0-3) Sinioris

HSM 568 Comparative International Health Care. A critical review of the health care systems of several countries, discussed in the context of their components and the political, social, and economic milieu in which they function. The goal will be to learn from the strengths and weaknesses of these systems and to identify components

that are cost-effective for the purpose of developing creative ideas that may be transportable to other delivery systems. WI (3-0-3) Monaghan.

HSM 571 Operations Management. Fundamental operations research and industrial engineering topics as applied to health care are presented. Topics might include: project management, productivity, queueing theory, and inventory theory. (4-0-4) Keers.

HSM 572 Advanced Operations Research. The focus of this course is on the solution of management and operational problems presenting themselves in the health care delivery setting through the use of advanced quantitative techniques. Emphasis will be placed on the theory behind some of the advanced techniques developed in HSM 571. (3-0-3)

HSM 574 Health Care Delivery Systems. This course provides an overview of the scope, structure, and role of the health care delivery system and its relationship to the external environment. Management function and technique are studied within this context. Limited to clinical nutrition students or permission of instructor. (2-0-2) Hinrichs.

HSM 576 Values and Power: Ethics for Health Care Managers. Same as REL 576. (3-0-3)

HSM 582 Intermediate Statistics. This course reviews a blend of pre-, true and quasi-experimental designs as well as intermediate level statistical tests which a health systems manager will likely use operationally or in empirical research. The statistical tests include ANOVA, simple and multiple regression, and such nonparametric techniques as the Kolmogorov-Smirnov, Wilcoxon, and Mann-Whitney. Knowledge of probability theory and univariate statistics as well as hands-on DOS and SPSS-PC+ computer skills, is presumed. Given a data set and articles for review, participants will design and implement a research plan, interpreting and subsequently writing their results in a journal article format. (4-0-4) Thompson, Kantutis.

HSM 583 Advanced Statistics. Emphasis on these advanced topics and concepts in statistics will be placed upon research methods and forecasting. (3-0-3) T

HSM 595 Graduate Seminar. An analysis of selected topics and issues in health care today with the broad participation of faculty and eminent leaders in the field. (1-0-1) Sinioris, Trufant.

HSM 597 Masters Project. A two quarter course that provides the second-year HSM student with the opportunity to apply problem-solving techniques and evaluation methods. The student conducts an applied management study at a Chicago-area health care organization. Major emphasis is placed on developing students' report writing and oral presentation skills. (8-0-8) Oleske.

IMMUNOLOGY

IMM 301 Basic Immunology. An introduction to the basic concepts and terminology of immunity including development, structure, and function of the lymphoid systems; the basis of antigenicity; antibody structure;

methods of detection and measurement; mechanism of cellular immunity; white cell function; hypersensitivity reactions; the complement system; and mechanisms of immune suppression and tolerance. Methods of laboratory evaluation of humoral and cellular immunity are introduced. (3-0-3)

IMM 402 Clinical Immunology. Study of clinical and applied immunology as it relates to the role of the immune response in production of disease; primary and secondary immunodeficiency, atopy and other forms of hypersensitivity, autoimmunity, transplantation and tumor immunity. The use of immunology as a diagnostic, prognostic and therapeutic aid is studied. Prerequisite: IMM 301. (2-0-2)

IMM 403 Clinical Serology. Students will learn to apply the fundamental concepts of antigen-antibody interactions to routinely performed assays of syphilis and nonsyphilis serology. Laboratory sessions cover proficiency in performance and familiarity with purpose, principles and interpretations of the following tests: RPR, CSF-VDRL, TPA, FTA-ABS, Monospot, Monotest, Heterophile, ASO, AHT, ANTI-DNAase B, RF Latex, RF SCAT, Anti-Thyroglobulin and Anti-Microsomal. Prerequisite: IMM 301. (3-6-5)

IMM 431 Immunohematology. Blood group antigens and antibodies from the discoveries of Landsteiner in 1900 to the present day are studied. Blood banking procedures involved in drawing, testing, storing, and transfusing whole blood and its components are discussed. The laboratory section will deal with the basic blood bank procedures including ABO grouping, RH typing, compatibility testing, and special antibody studies. Prerequisite: Immunology 301. (3-6-5)

IMM 501 Immunology. An introduction to immunology with emphasis on basic concepts and principles, interwoven with a study of their clinical applications. SP (5) [53 hours] Siegel.

IMM 502 Introduction to Experimental Immunology. A graduate introductory course covering basic concepts in experimental immunology including basic laboratory techniques. FA (4-0-4) Lint.

IMM 521 Basic and Clinical Immunology: Lecture Segment. A comprehensive introduction to immunology, with emphasis on basic concepts and principles, and clinical applications. SP (5-0-5) Siegal.

IMM 531 Cellular Immunology. A comprehensive course in cellular immunology including lymphocyte ontogeny, cellular interactions, and effector cell functions, immunogenetics and tumor registry. Alt. WI (4-0-4) Finnegan.

IMM 543 Molecular Immunology. A comprehensive examination of immunoglobulins and antigens with special emphasis on how structure relates to immune function and on the molecular basis of antibody diversity and complement reactivities. Alt. WI (4-0-4) Lint.

IMM 571 Laboratory Tutorial. Individual program designed to acquaint the student with research protocols and interests within the department. (v-v-v) Staff.

IMM 585 Research Seminar. Seminar on contemporary topics in immunology and virology. FA WI SP (1-0-1) Lint.

IMM 590 Special Topics. Detailed study of contemporary topics in immunology. These are presented in a five week block and include topics such as Inflammation, Host Defense, Membrane Structure, and Antigen Presentation. (v-v-v) Staff.

IMM 598 Pre-Dissertation Research. Research credits prior to acceptance to doctoral candidacy. (v-v-v) Advisor.

IMM 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

IMM 699 Dissertation Research. Research credits after admission to candidacy. (v-v-v) Advisor.

INTERNAL MEDICINE

MED 501, 502, 503 Clinical Pathophysiology I, II, III. Serving as a bridge between the basic sciences and clinical medicine the course helps to make the student conversant with the limits of biochemical and physiologic responses under a variety of stresses and disease states. Emphasis is in three basic areas: abnormal, general cellular biology; homeostasis; and organ system pathophysiology. The course closely coordinates with topics in the pathology course and also with didactic material to be presented during the third-year clinical program. FA WI SP [171 hours] Szidon.

MED 601 Core Clerkship in Internal Medicine. The medicine clerkship is designed to introduce students to the study and skills of clinical medicine. The case study approach is used in evaluation and management of patients and their problems so that students can develop their skills in history taking and differential diagnosis, as well as development of therapeutic regimens. By caring for patients students develop an understanding of relationships between disease states and patient hosts from the medical, social, and emotional points of view. The ward team approach allows students the opportunity to work toward the goals of good patient care and the acquisition of a solid foundation of medical knowledge. In order to ensure a broad experience in internal medicine, students are expected to supplement their learning through a self-study program of learning objectives. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Rosen, Baker.

MED 605 Geriatric Medicine. This elective is organized around the Johnson R. Bowman Center for the Elderly at Rush and the Plymouth Place Life Care Community in LaGrange Park. Students will be exposed to a broad range of elderly persons in a variety of settings. The breadth of geriatric medicine, including the role of caregivers, the role of institutions and the clinical concepts and skills related to quality care of the elderly will be

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stressed. Prerequisite: MED 601. FA WI SP SU [4 weeks] Overton.

MED 610 Internal Medicine Subinternship. Students function at an advanced level, doing histories and physical examinations, diagnostic evaluations, and initiation of appropriate therapy. There is close supervision by the staff of the Department of Internal Medicine. The course is primarily intended for students desiring additional clinical experience in internal medicine. Additional sites are Cook county, Christ, West Suburban, Illinois Masonic, and Rush North Shore hospitals. Prerequisite: FAM 601, MED 601, PED 601, SUR 601. FA WI SP SU (except July) [4 weeks] Rosen.

MED 611 Cardiology. The study of the diagnostic spectrum of cardiac evaluation including bedside assessment, critical care cardiology, electrocardiography, electrophysiology, echocardiography, cardiac catheterization, coronary angiography, coronary care, interventional cardiology, preventive cardiology and exercise testing. Patient study is carried out under the direction of the clinical staff. Prerequisite: MED 601. FA WI SP SU [4 weeks] Parrillo.

Cardiology/Rush North Shore. Students will learn basic clinical bedside inpatient and office cardiology and will be exposed to the more complex consultative aspects of clinical cardiology. The student is expected to become familiar with the basic non-invasive and invasive cardiac procedures routinely performed. Specifically they will learn to read 12 lead scalar electrocardiograms and recognize the more common cardiac arrhythmias as may be observed on ambulatory electrocardiography. They will learn the basic principles of echocardiography and coronary cinangiography testing. They will rotate with a non-invasive and an invasive cardiologist respectively and are encouraged to allocate more or less time as desired to each with the framework of a one month rotation. Prerequisite: MED 601. FA WI SP SU [4 weeks] DeLeo.

MED 612 Medical Intensive Care Unit. Experience in the recognition and management of medical emergencies, particularly the use of temporary pacemakers, bedside hemodynamic monitoring, use of mechanical ventilators, and management of renal emergencies and cardiac arrhythmias. Patient care is carried out under the direction of the clinical staff. Prerequisite: MED 601. FA WI SP SU [4 weeks] Balk

MED 613 Introduction to Cardiovascular Research. Student programs are individually planned with emphasis on understanding basic research techniques rather than on the accomplishment of a specific research project. Students participate in the research program of the Section of Cardiology, including projects in human hemodynamics, angiography, preventive cardiology, noninvasive studies, myocardial metabolism, clinical trials, cardiovascular electronics, critical care cardiology, and computer application. Prerequisite: MED 601. FA WI SP SU [4-8 weeks] Parrillo.

MED 615 Emergency Medicine. Students will see patients in all areas of the emergency room under the

supervision of attendings and residents. They will be expected to take a complaint-oriented history, with attention to pertinent past medical history, and perform a pertinent physical exam. They will record their findings on the Emergency Room Medical Record and discuss the patient with the attending. Together they will formulate a diagnostic plan, bearing in mind time and cost factors and priorities inherent in various diagnostic possibilities. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Hanashiro.

MED 621 Clinical Endocrinology and Metabolism. Endocrine and metabolic disorders are studied under the direction of the clinical faculty. Regular didactic sessions, departmental conferences and seminars supplement clinical work, which involves both outpatients at Cook County Hospital and Rush and inpatients at Rush-Presbyterian-St. Luke's Medical Center.. Prerequisite: MED 601. FA WI SP SU [4 weeks] Mazzone.

MED 626 Clinical Nephrology. The clinical diagnosis and management of patients with renal disease as well as various fluid, acid-base, and electrolyte abnormalities are studied. In addition, the course is directed toward the proper interpretation of pathophysiologic findings and the practical management of various disorders involving the excretory system and body fluids. Prerequisite: MED 601. FA WI SP SU [4 weeks] Lewis.

MED 632 Digestive Diseases. All aspects of hepatology and gastroenterology are studied. Students will spend two weeks on the hepatology service. The didactic sessions cover a broad range of topics. Teaching is an integral part of rounds. Students evaluate patients and follow their clinical course. Observation of endoscopic procedures is encouraged. Active involvement in patient care with interactions with fellows and attending staff are key to the functioning of the services. A weekly conference held jointly with Cook County Hospital covers clinical aspects of gastroenterology and liver disease. Research conferences and journal club are also available. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schaffner.

MED 636 Clinical Hematology. Students receive an intensive exposure to clinical hematology by meeting with residents, fellows and a teaching-attending hematologist daily for presentation and discussion of hospitalized hematology patients. Students work-up patients, present them to the attending and participate in patient care with medical residents. Blood and bone marrow slides on the service patients are reviewed daily with attending hematologists using a teaching (multi-headed) microscope. Bedside rounds follow the daily presentation of cases. On Tuesday, a multidisciplinary lymphoma conference presents diagnostic and therapeutic aspects of the malignant lymphomas. On Wednesday, a clinical conference is held in which a patient is presented and discussed in depth by students, residents and faculty. On Thursday, intra- and extramural faculty participate in a hematology lecture series. A recent addition to this elective is a daily self-learning session with a faculty member on a core topic of hematology. Twenty of these topics cover the spectrum of hematologic diseases. Prerequisite: MED 601. FA WI SP SU [4 weeks] Fried.

MED 646 Clinical Infectious Disease. Students are expected to master basic principles of diagnosis and management of patients with infections. Appropriate use of diagnostic microbiology, differential diagnosis of febrile patients, and appropriate selection of chemotherapeutic agents are taught during case presentations on daily rounds and in weekly lecture series. Prerequisite: MED 601. FA WI SP SU [4 weeks] Benson.

MED 651 Clinical Rheumatology. Emphasis is on the fundamentals of joint examination, observation and performance of laboratory examinations on synovial fluid, and familiarity with the spectrum of laboratory procedures useful in rheumatologic diagnosis and treatment. The interdisciplinary approach relies heavily on contributions of immunology, orthopedics, diagnostic radiology, physiotherapy, and occupational therapy. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schnitzer.

MED 661 Clinical Oncology. Patients seen by the Section of Medical Oncology provide an ample and varied spectrum of oncological problems. Students study selected patients under the direction of members of the section. Various therapeutic approaches and complications occurring in the course of the disease are discussed. The program stresses the importance of the combined interdisciplinary approach, using the resources of the departments of surgery, therapeutic radiology, pathology, and nuclear medicine. Students will have the opportunity to participate in the teaching programs of the medical oncology ward on 10 Kellogg. Prerequisite: MED 601. FA WI SP SU [4 weeks] Cobleigh.

MED 671 Clinical Pulmonary Medicine. The management of patients with pulmonary disease provides the focus for the study of clinical management, interpretation and use of pulmonary function and ventilatory studies, and gas management. The essentials of pulmonary physiology are emphasized. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Rosen.

MED 677 Clinical Allergy/Immunology. The goal of this elective clerkship is to provide an opportunity for medical students to become familiar with the principles important in the diagnosis and treatment of immunological diseases. To achieve this goal, the student will interact with the allergy fellows and the attending physicians. There will be ample opportunity for the student to participate in an active outpatient service. In addition, the student will make daily teaching rounds on all inpatients on the allergy/immunology service. The student will attend several teaching conferences. In addition, the student will also be responsible for a seminar presentation at the end of the clerkship. Prerequisite: MED 601. FA WI SP SU [4 weeks] Zeitz.

MICROBIOLOGY

MIC 311 Diagnostic Bacteriology. Special emphasis is on diagnostic procedures employed in the clinical bacteriology laboratory, such as specimen collection, isolation and identification of medically important bacteria, antibiotic sensitivity testing, and determination of serum antibiotic levels. Course includes laboratory exercises

associated with these various concepts. Development of proficient skills in the various techniques is stressed. (5)

MIC 411 Parasitology, Mycology, and Virology. This course provides clinical background in mycology, parasitology, and virology. Emphasis is on the disease involved and on diagnostic procedures used in the laboratory. The laboratory portion consists of identification, specimen collection and processing of medically important viruses, fungi and parasites. Prerequisite: MIC 311. (3-6-5)

MIC 451 Microbiology Concepts. An introduction to the morphological and physiological characteristics of infectious agents of importance in human disease. SP (5-1-5) [55 hours] Huang.

MIC 501 Clinical Bacteriology. The experience provides rotation in each section of the diagnostic bacteriology laboratory with emphasis on laboratory identification of bacteria. Prerequisite: MIC 451. (v-v-v) [4 weeks] Landau.

MIC 505 Basic Microbiology. A graduate introductory course covering basic concepts and laboratory techniques in experimental bacteriology and virology. FA (3-2-4) Peeples.

MIC 523 Molecular Genetics. Contemporary study of topics in gene organization, transcription, translation, and gene regulation. Alt. SP (4-0-4) Kwan.

MIC 531 Virology. Advanced study of human and animal viruses and their interactions with cells. Prerequisite: MIC 451. Alt. WI (5-0-5) Gupta.

MIC 561 Clinical Microbiology for Graduate Students. A review of critical topics in clinical microbiology from the clinical and pathologic viewpoints. SP (3) Landau, Huang.

MIC 590 Special Topics. Detailed independent study of contemporary topics in microbiology. (v-v-v) Staff.

MIC 599 Independent Study. Specialized course work designed around the particular needs of an individual student. (v-v-v) Staff.

MIC 610 Clinical Microbiology. Students will rotate through each of the basic areas of the microbiology laboratory. Specimen handling, laboratory identification of organisms, and clinical correlation are covered. Permission of instructor. Prerequisite: any core clerkship. [2 weeks] Landau.

MEDICAL PHYSICS

MPH 457 Radiation Safety of Radioactive Materials. This course reviews basic nuclear physics and health physics principles and practices, regulations and instrumentation for the safe use of radioactive material. FA (2-0-2)

MPH 458 Radiation Detection and Measurement. A study of basic physics principles and applications with laboratory exercises on techniques and instrumentation for

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nuclear radiation detection and measurement as they relate to nuclear physics and radiation safety of radioactive materials. Prerequisite: MPH 457. WI (1-3-2)

MPH 460 Introduction to Medical Physics. An introductory course in physics for residents in diagnostic radiology, nuclear medicine and radiation oncology. The course covers medical x-ray equipment design and use, clinical dosimetry, and quality assurance. SU (3-0-3)

MPH 461 Physics of Diagnostic Radiology. An intermediate course in physics for residents in diagnostic radiology and nuclear medicine. Prerequisite: MPH 460. FA (3-0-3)

MPH 463 Physics of Nuclear Magnetic Resonance Imaging. This course is a basic introduction to the physical principles of MRI, with emphasis on proton MRI. Topics covered will include fundamentals of magnetic resonance, relaxation times, and the basis for imaging techniques. FA (2-0-2)

MPH 464 Concepts in Magnetic Resonance Imaging. A basic conceptual overview of magnetic resonance principles as applied to image formation is provided. Fundamental proton magnetic resonance concepts as well as basic imaging principles will be discussed on a level appropriate for medical residents in radiology. This course is structured as a subset of MPH 463. FA (1-0-1)

MPH 465 Computer Science Applied to Imaging. The objective of this course is to present the fundamentals of computer science to physicians whose specialty is in diagnostic imaging. WI (3-1-3)

MPH 471 Physics of Nuclear Medicine I. The course covers mathematics and detectors used in nuclear medicine. Imaging instrumentation, including scintillation camera, emission tomography, and application of the computer to nuclear medicine is covered. SP (3-0-3)

MPH 475 A Workshop in Radiopharmaceutical Science. This course covers production of radionuclides, generators; formulation and Q.C. of tracers for 16 organ localization, in vitro and in vivo studies; dosimetry; FDA and safe handling. Compounding, biodistribution, and imaging will be studied in the laboratory. (1-0-1)

MPH 481 Introduction to Medical and Therapeutic Radiological Physics. An introductory course in physics for residents in radiation oncology covering all materials of MPH 460 with additional clinical dosimetry and laboratory demonstrations. SU (3-1-4)

MPH 482 Therapeutic Radiological Physics. An intermediate course in physics for residents in radiation oncology. The five "p's" of radiation therapy physics are examined: prescription, physical dose, planning, precision, and pattern of treatment outcome. Additionally, interactions of x-rays and gamma-rays; measurement of exposure, calibration of high-energy photon and electron beams; and dose distributions for external-beam therapy are studied. Prerequisite: MPH 460. FA (3-0-3)

MPH 483 Dosimetry Applied to Therapeutic Radiology. This course is designed for therapeutic

radiology trainees, including residents, dosimetrists and technologists, and is organized as a rotation in the Section of Medical Physics. The laboratory exercises consist of routine dosimetry computations in clinical radiotherapy. Prerequisite: MPH 481. (0-8-4)

MPH 484 Brachytherapy Physics. This course is designed for residents in therapeutic radiology and graduate students. Topics include basic physics of radioactivity, and use of radioactive isotopes in clinical radiotherapy. Prerequisite: MPH 482. WI (2-0-2)

MPH 486 Introductory Hyperthermia. This course will cover the physical and biological mechanisms of hyperthermia as well as the commonly used methods for delivery of heat energy for cancer therapy. (2-0-2)

MPH 490 Diagnostic Radiological Physics Review. An intensive review course in all branches of medical radiological physics for preparation for the Board of Radiology Certification Examination. Prerequisites: MPH 461, 471. (3-0-3)

MPH 491 Introduction and Application of Computers in Medical Physics. The course covers basic components and a systematic presentation of computer programs useful in medical physics. SU (2-0-2)

MPH 492 Therapeutic Radiology Physics Review. An intensive review course for therapeutic radiology residents and graduate students in medical physics in preparation for the American Board of Radiology Certification Examination. (2-0-2)

MPH 501 Radiation Physics. This course provides a rigorous examination of the interaction with matter of high-energy particles: photons, electrons, neutrons, and heavy-charged particles. FA (4-0-4)

MPH 502 Radiological Physics I. The course covers design and operation of accelerators; radiation quantities and units including stochastic and nonstochastic quantities; ion collection and recombination; and dosimetry systems used in therapeutic radiology and radiobiology. Prerequisite: MPH 501. WI (4-0-4)

MPH 503 Radiological Physics II. Continuation of MPH 502. SP (4-0-4)

MPH 504 Topics in Medical Physics. The course covers selected topics in radiation detection, interaction, and protection. Topics will also be selected from radiation dosimetry and diagnostic and therapeutic imaging. Prerequisite: MPH 502. (v-v-v)

MPH 505 Radiological Physics Laboratory. This is a practical course directed towards understanding of the instruments, computers, apparatus, and facilities used in applied radiation work. This course will include carrying out scientific evaluation and essay-type reporting. MPH 502. (v-v-v)

MPH 506 Clinical Physics Practicum. Students participate in clinical physics under supervision. The practicum can be taken in areas of radiation therapy,

diagnostic radiology, nuclear medicine, and radiation safety. (v-v-v)

MPH 531 Radiation Biology. The course will consider ionizing radiation effects on single cells, organized tissue, and the known effects on man. Emphasis will be put on those radiobiological principles which closely relate to cancer treatment. SP (3-0-3)

MPH 542 Radiation Oncology. This course will develop the basic concepts and principles of nonsurgical cancer management. The natural history of cancers in various organs will be reviewed and therapeutic strategies developed based on the pathophysiology of different cancer sites. (2-0-2)

MPH 565 Transfer Function Analysis. Starting with a rigorous presentation of Fourier transform theory, this course develops transfer function analysis for application to imaging systems. WI (2-0-2)

MPH 581 Methods of Photon Dose Calculation. Current methods of photon dose calculation for radiation treatment planning systems, particularly those using interaction kernels. Prerequisite: MPH 565. (2-0-2)

MPH 582 Methods of Electron Dose Calculation. Methods of Electron Dose Calculation. Current methods of electron dose calculation for radiation treatment planning systems, particularly those based upon Gaussian multiple-scattering theory. Prerequisite: MPH 565. (2-0-2)

MPH 583 Monte Carlo Methods. The EGS4 Monte Carlo code for photon/electron transport will be explained, with emphasis upon gaining "hands on" experience in using this research tool. (2-0-2)

MPH 590 Medical Physics Research Seminar. This seminar serves as a forum for review of the ongoing research by the faculty, appropriate staff members, fellows, and graduate students. (1-0-1)

MPH 597 Introduction to Research. The student will undertake a directed project with a faculty member as an introduction to research. (v-v-v)

MPH 598 Thesis Research. Under the guidance of a faculty member and committee, the student originates, proposes and executes basic or clinical research. (v-v-v)

MPH 599 Independent Study. The student will undertake a creative project design under the supervision of a faculty member. (v-v-v)

MPH 699 Dissertation Research. Postcandidacy research by arrangement with staff. (v-v-v)

The following courses are offered if there is enough demand:

MPH 466 Radiation Protection Using Fluoroscopic X-rays. This course is designed for fluoroscopic users other than radiologists. The course includes six series of lectures covering the basic radiation physics, fluoroscopy, radiation biology and radiation protection. (1-0-1)

MPH 488 Physics Applied to Dermatology. The course covers basic physics, interaction of radiation with matter, definition and measurement of dose for low-energy x-rays, and megavoltage electrons which are used for dermatological treatment. (1-0-1)

MPH 557 Radiation Protection. This course covers advanced topics in radiation protections, technical approaches for minimizing the dose, authorization to use radioisotopes, responsibilities of users, standards for radiation exposure, airborne contamination limits, transportation of radionuclides, formulation of standards, medical findings on individuals exposed to radiation, sources producing population exposure, and federal and state regulations. Prerequisite: MPH 457. (3-0-3)

MPH 561 Physics of Diagnostic Radiology. This course covers x-ray generators; recording systems; grids; fluoroscopy; image intensifier TV systems, etc. In addition, an introduction to transfer function analysis of imaging systems is given. Prerequisite: MPH 461. (3-0-3)

MPH 571 Physics of Nuclear Medicine II. The course covers production of isotopes, radiation detection, pulse height analysis, counting statistics, imaging theory, Fourier analysis, scintillation camera, collimation of radiation, image recording, noise analysis, image processing, quality assurance, radiation safety, evaluation of image quality, digital computers in nuclear medicine, dynamic and functional imaging, emission computed tomography, biokinetics and compartmental modeling, and radioimmunoassay. Prerequisite: MPH 471. (3-0-3)

MPH 575 Nuclear Science Techniques as Applied to Biology and Medicine I. This course covers radioactivity, measuring devices, production modes; nuclear reactor, cyclotron, generators; radiochemistry, labeling (^3H , ^{14}C , ^{125}I); and autoradiography, body counting, NAA. (2-0-2)

MPH 576 Nuclear Science Techniques as Applied to Biology and Medicine II. This course covers: labeling ($^{99\text{m}}\text{Tc}$, ^{131}I , ^{75}Se , ^{11}C , ^{13}N , ^{18}F) & Q.C.; tracers for 16 organs; applications in nuclear medicine, therapy, in vitro, hematology; dosimetry; radiation safety; licensing; and FDA. Prerequisite: MPH 575. (2-0-2)

MEDICAL TECHNOLOGY

MTK 303 Body Fluid Analysis. Analysis of various body fluids with emphasis on the theory and practice of clinical procedures. Component topics will include the analyses of urine, gastric juice, cerebral spinal fluid, feces, semen, transudates, and exudates. (3-6-5)

MTK 304 Basic Laboratory Skills. Study and practice of basic laboratory skills used in the various clinical laboratory areas. Topics covered include instrumentation, proper use and maintenance; manual skills such as pipetting, titrating and venipuncture; preparation and standardization of reagents; and quality assurance laboratory calculations. (3-12-6)

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MTK 305 Patient Care Techniques. Rotation through the Patient Specimen Acquisition Unit. Various techniques of specimen collection and phlebotomy are discussed and practiced. Participants perform venipuncture and fingerstick procedures on in-house patients throughout the various areas of the hospital. Pediatric and geriatric patients are included as well as the general medical/surgical patients. Procedures for specimen processing and result reporting are learned. Senior standing. (2)

MTK 405 Clinical Laboratory Information Systems. An introduction to computerized information systems used in the clinical laboratory including development, function, and maintenance. Fundamental computer concepts, concerns in managing computer resources, as well as system analysis, implementation, and evaluation will be discussed. Laboratory sessions will be used to reinforce the technical material and demonstrate the application of the conceptual issues. (2-0-2)

MTK 421 Practicum in Clinical Chemistry. Rotation through the hospital clinical chemistry laboratories. The course includes the application of basic skills learned in student chemistry laboratory, instrumentation, and advanced methodologies. (0-24-8)

MTK 422 Practicum in Hematology. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are included. radio-hematology, bone marrow techniques, and coagulation are also covered. (0-24-8)

MTK 423 Practicum in Immunology. Rotation through the hospital clinical immunology laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-20-5)

MTK 424 Practicum in Microbiology. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-24-8)

MTK 425 Practicum in Immuno-hematology. Rotation through the hospital blood bank laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-20-5)

MTK 431 Categorical Practicum in Clinical Microbiology I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. (0-12-4)

MTK 432 Categorical Practicum in Clinical Microbiology II. Continuation of MTK 431. (0-12-4)

MTK 433 Categorical Practicum in Clinical Microbiology III. Continuation of MTK 432. (0-12-4)

MTK 434 Categorical Practicum in Clinical Hematology I. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned

in student laboratory, instrumentation, and advanced methodologies are included. Radio[HO]hematology, bone marrow techniques, and coagulation are also covered. For categorical students only. (0-18-6)

MTK 435 Categorical Practicum in Clinical Hematology II. Continuation of MTK 434. (0-18-6)

MTK 437 Categorical Practicum in Clinical Chemistry I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. (0-12-4)

MTK 438 Categorical Practicum in Clinical Chemistry II. Continuation of MTK 437. (0-18-6)

MTK 439 Categorical Practicum in Clinical Chemistry III. Continuation of MTK 438. (0-24-8)

MTK 441 Seminar in Medical Technology I. Discussion of current topics in medical technology and associated fields. Students present abstracts. (2-0-2)

MTK 442 Seminar in Medical Technology II. (1-0-1)

MTK 443 Categorical Practicum in Immunology I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. (0-12-4)

MTK 444 Categorical Practicum in Immunology II. Continuation of MTK 443. (0-24-8)

MTK 445 Categorical Practicum in Immunology III. Continuation of MTK 444. (0-18-6)

NURSING--ANESTHESIA

NAN 521 Chemistry and Physics in Anesthesia. An introduction to principles of chemistry and physics for nurse anesthesia practice. Major emphasis is on physical chemistry, e.g., states of matter, gas laws, thermodynamics and solutions. FA (4-0-4)

NAN 600 Residency in Anesthesia Nursing. A 52-week, 4-quarter residency following completion of the anesthesia nursing curriculum which provides the opportunity of clinical proficiency in anesthesia practice. Includes journal clubs and conferences. No academic credit given.

NEUROLOGICAL SCIENCES

NEU 451 Medical Neurobiology. An integrated approach to the central and peripheral nervous system from an anatomic, physiologic and neurochemical standpoint is presented. Based on neuroanatomy, major systems are developed and discussed in terms of anatomic arrangement, physiologic functioning and related synaptic pharmacology. In all systems clinical lectures highlight the practical applications of basic science concepts in patient evaluation and management. (6-3-7) [81 hours] Kerns, Zimmermann.

NEU 501 Introduction to Neuroscience. The physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems and higher functions of the nervous system. Neuroanatomical concepts will be correlated to the physiology. Prerequisite: ANA 465. WI (4-0-4)

NEU 541, 542 Statistics for Neuroscience I, II. A two quarter course covering basic probability and statistical theory.. It is not intended to cover all areas of advanced statistical application, but rather to provide the tools for comprehending analytical theory. During the last two weeks of class, guest speakers present examples of their research and statistical analyses. SU FA

NEU 551 Physiology of the Nervous System Function/Dysfunction. An introductory overview of central nervous system disease processes and their treatment. Disease states to be covered include those affecting the neuromuscular junction, the spinal cord, as well as the central nervous system. (4-0-4)

NEU 591 Advanced Neuroscience Proseminar. Taught jointly by participating faculty, a seminar format is used to encourage extensive discussion and student participation. (v-v-v) Staff.

NEU 598 Pre-Dissertation Research. Research credits prior to acceptance to doctoral candidacy. (v-v-v) Advisor.

NEU 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

NEU 601 Core Clerkship in Neurology. Patients with various neurological disorders are studied; invasive and noninvasive techniques are observed and practiced. Designed to maximize the use of time that students spend in neurology, extensive discussion of each case by senior resident staff and attending physicians are utilized to enhance exposure to neurologic disease. Formal lecture attendance at weekly department conferences and teaching rounds held six days a week provide training in basic neurodiagnostic techniques. Prerequisite: MED 601 FA WI SP SU [4 weeks] R. Wright.

NEU 602 Advanced Neurology. This advanced clerkship is intended to provide students the opportunity to further develop their clinical skills. Students will participate in the outpatient activities of the department and, in particular, will have ample opportunities to see patients in the movement disorder, epilepsy, muscular dystrophy, and multiple sclerosis clinics. This is a flexible program which will be structured to fit the interest and needs of individual students. Prerequisite: NEU 601. FA WI SP SU [4 weeks] R. Wright.

NEU 681 Neurological Research. Students participate in ongoing research projects within the department. Current areas of investigation include neuropharmacology, movement disorders, cerebrovascular disease, sleep disorders, epilepsy, neuromuscular disorders, multiple sclerosis, and dementia. Generally participating in an

ongoing project of a faculty member will be most practical. Prerequisite: NEU 601. FA WI SP SU [v] R. Wright.

NEU 690 Selected Topics in Neuroscience. Detailed study of contemporary topics in neurology. (v-v-v) Staff.

NEU 699 Dissertation Research. Research credits after admission to candidacy. (v-v-v) Advisor.

CLINICAL NUTRITION

NTR 503 Management in Dietetics. An examination of management strategies and techniques used in delivery of food and nutrition services in a health care setting. FA (3-0-3)

NTR 505, 506 Advanced Clinical Nutrition I, II. The interrelationships between diet intervention/treatment and disease states are reinforced. Students apply principles of diet therapy to various disease states. Principles of enteral and parenteral nutrition are included. Limited to clinical nutrition students. SP SU (3-0-3) (3-0-3) Variable credits for track II students only.

NTR 511, 512 Supervised Experience in Food Systems Management I, II. Students function as members of the management team in the food service units of the medical center. Through increasingly complex learning experiences, students will be expected to develop competence as an entry level practitioner in food service management. Limited to clinical nutrition students. FA WI (0-24-3) (0-24-3)

NTR 513, 514 Supervised Experience in Clinical Nutrition I, II. Students will plan, organize, direct and evaluate nutrition care for individuals and groups of varying ages and lifestyles, in sickness and health. Students will function as members of the health care team with increasingly complex learning experiences and clinical responsibilities. Limited to clinical nutrition students. SP SU (0-24-3) (0-24-3)

NTR 515 Supervised Dietetic Staff Experience. The student will assume full responsibility for a patient care unit under the supervision of a staff dietitian. FA (0-40-5)

NTR 521 Human Metabolism I. Lectures present important and relevant pathways in human biochemistry and metabolism as they relate to nutrition. The course focuses on carbohydrate catabolism/anabolism at the cellular, organ and total body levels. FA (3-0-3)

NTR 522 Human Metabolism II. Emphasis is on lipid and protein metabolism. Lectures will focus on the chemical nature, sources, storage, transport and utilization of fatty acids and cholesterol; amino acid requirements in humans, important pathways, reactions and relevance to human metabolism. Prerequisite: NTR 521. WI (3-0-3)

NTR 524 Advanced Vitamin Metabolism. Lectures and readings describe current consensus on the functional aspects of these micronutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

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NTR 525 Advanced Mineral Metabolism. Lectures and readings describe current consensus on the functional aspects of these nutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

NTR 527 Advanced Protein Metabolism. Lectures and readings review mammalian protein metabolism in liver, muscle, intestine, and brain and emphasize metabolic changes in response to various diets, infection, and certain disease states. Permission of instructor required. Prerequisite: NTR 522. (3-0-3)

NTR 528 Advanced Carbohydrate and Lipid Metabolism. Lectures emphasize the role of diet composition and starvation in the regulation of carbohydrate and lipid metabolism. Permission of instructor required. Prerequisite: NTR 522. (4-0-4)

NTR 534 Nutrition in Critical Care. This is an advanced level supervised experience in enteral and parenteral nutrition. Current rationale and techniques for assessing patient requirements and monitoring nutritional therapy in nonvolitionally fed patients will be explored. The latter part of the course reviews formulae used in the liver, kidney, or lung disease. Special attention is given to metabolic complications associated with intravenous feeding. Prerequisite: NTR 542, 515 or permission of instructor. FA WI (0-20-3)

NTR 541, 542 Interrelationships of Nutrition and Disease I, II. Students will describe the pathophysiology, diagnosis and treatment of those disorders that adversely affect human nutrition. Special emphasis will be placed on analysis of current theories. Permission of instructor required. Prerequisite: NTR 522. SP SU (4-0-4) (4-0-4)

NTR 543 Physiological Basis of Exercise and Nutrition. An examination of the physiological and metabolic adaptations to exercise and physical conditioning. Special attention is given to the nutritional needs of the human body in response to specific types of exercise. Permission of instructor required. Prerequisite: NTR 522, 542. FA (4-0-4)

NTR 551 Nutrition in the Life Cycle: Conception to Age One. A study of the nutritional requirements of the human female through the childbearing cycle as well as the fetus and newborn child through the first birthday. Special attention will be paid to human lactation and breastfeeding. WI (2-0-2)

NTR 565, 566 Seminar I, II. Students and faculty will present topics/research related to food, nutrition and food service management. All departmental research is presented in this forum. FA WI (1-0-v) (1-0-v)

NTR 572 Nutrition Communication. Theoretical models from a variety of disciplines will be introduced as potential frameworks for nutrition education. Students will explore strategies for oral and written communications and will learn techniques that may be applied in any setting with any audience. Individualized application of the theories, strategies and techniques will be emphasized. WI (3-0-3)

NTR 574 Management in Nutrition Care Systems. Emphasis is on the delivery of optimum nutrition care within the cost effective parameters of an evolutionary health care system. WI (3-0-3)

NTR 582 Introduction to Research. An orientation to research designs and methodologies; collection and analysis of data for specified objectives. Prerequisite: PVM 541. WI (3-0-3)

NTR 583 Food Systems Operations Analysis. A study of significant food systems management issues in the healthcare industry. FA (1-0-1)

NTR 585 Applied Nutrition Research. Under faculty supervision, the student will conduct a research project and prepare a written research report which includes a statement of the problem, review of the literature, research methodologies, findings, discussion, and conclusions. Project approval by both the faculty preceptor and the course director is required. For Track II students only. May be repeated for a total of six credits. Prerequisite: HCE 582. (0-0-v)

NTR 586 Applied Nutrition Research I. Under faculty supervision, students will prepare a research proposal. Emphasis will be on a review of current research literature, appropriate research design and methodology. Prerequisite: NTR 582. SP (v-0-2)

NTR 587 Applied Nutrition Research II. Students present research proposals and upon faculty approval, initiate data collection. Emphasis will continue on research design, data analysis and scientific integrity. Prerequisite: NTR 586. SU (v-0-2)

NTR 588 Applied Nutrition Research III. Students complete research data analysis and prepare final research paper. Emphasis continues on data analysis, scientific integrity, plus skills in scientific writing. Prerequisite: NTR 587. FA (v-0-2)

NTR 590 Special Topics. In depth examination of timely professional issues. Content varies according to topic choices for presentations from faculty and guest speakers. Limited to clinical nutrition students. FA (1-0-v)

NTR 592 Individualized Clinical Practice. For students who wish advanced experience in one or more areas of clinical nutrition practice. Limited to clinical nutrition students. (0-v-v)

NTR 599 Independent Readings. The student completes a literature search and written paper on a topic related to nutrition that will complement his/her learning goals. Arrangements for study must be made with the preceptor prior to registration. (0-0-v)

NURSING

NUR 301 Fundamental Nursing Interventions. The concepts and principles of fundamental psychomotor nursing skills are taught through lecture, demonstration, and supervised laboratory practice. Mastery of psychomotor skills provides the basic principles and

techniques in the development of nursing interventions. (0-2-1)

NUR 302 Foundations of Nursing Practice. An introduction to the nursing process, providing necessary beginning for integration of the biological, behavioral, and management concepts required to understand contemporary nursing practice. Emphasis is placed on professional nursing concepts and includes nursing diagnosis, nursing process, communication, and patient education. (2-3-5)

NUR 302H Foundations of Nursing Practice. Same as NUR 302. Offered to Graduate Entry Level students only. (2-3-5)

NUR 303 Basic Health Assessment. A basic systematic approach for obtaining and recording a complete health history and physical examination of well individuals. Ethical and cultural issues are presented; screening and risk assessment are addressed. (2-1-3)

NUR 314, 315 Medical Surgical Primary Clinical I, II. Two five week courses in pathophysiology, advanced health concepts, and application of related nursing science. The nursing process is utilized in promoting optimal health and minimizing the complications of disease. Courses offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361 or equivalent. (5)

NUR 316 Pediatric Nursing Primary Clinical. Concepts of growth, development, the nursing process, and family centered care are integrated throughout the course. The focus is on commonly occurring acute and chronic health problems in the pediatric population. Inpatient settings are used to provide a complete range of child and family nursing care experiences. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361 or equivalent. (5)

NUR 317 Obstetrical Nursing Primary Clinical. Normal physiologic and psychosocial adaptations during the childbearing cycle are discussed as well as the common problems that occur in mother and infant. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361 or equivalent. (5)

NUR 318 Gerontological Nursing Primary Clinical. Focuses on the clinical management of common health problems of the older adult. Common age related physiologic and psychosocial adaptations are also examined. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361 or equivalent. (5)

NUR 319 Community Nursing Primary Clinical. Basic concepts of community health nursing practice with individuals, families, and communities. Identification of the roles and functions of the community health nurse in view of the health illness continuum. The nursing process is utilized to provide care and clinical experience in the home, outpatient settings, and community agencies. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 361 or equivalent. (5)

NUR 320 Psychiatric Nursing Primary Clinical. The major psychiatric disorders and their management are covered, as well as communication skills necessary for a therapeutic relationship. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: NUR 302, 303, 363 or equivalent. (5)

NUR 361 Pathophysiology. A conceptual approach to the alterations in normal physiologic processes that can occur during the life cycle. Prototypes are used to illustrate disease concepts. (4-0-4)

NUR 362 Introduction to Pharmacology in Nursing Practice. Introductory concepts in clinical pharmacology focusing on drug actions, reactions, and interactions. NOTE: 362 is required for progression to level 5. Prerequisite: NUR 361. (3-0-3)

NUR 363 Theories of Human Response to Illness. Human responses to illness are discussed using various conceptual frameworks. Nursing approaches that facilitate adaptation are explored. (3-0-3)

NUR 382 Introduction to Nursing Research. An introduction to the basic concepts, techniques, and methods of the research process and evaluation of contemporary nursing research. Prerequisite: An introductory statistics course. (2-0-2)

NUR 390 Selected Topics in Nursing. The registered nurse student focuses on role changes for professional practice. Issues and problems related to the nursing profession within current and emerging health care systems are examined. The course is prerequisite to NUR 314-320 and 411-413. (2-0-2)

NUR 402 Heritage of Nursing. Study of the development of the nursing profession and contribution of nursing leaders within the context of societal and cultural factors. Emphasis is on the contribution, trends, and issues that influence individuals and the nursing profession. (3-0-3)

NUR 403 Social Systems Theory and Nursing. Theories and dynamics of social systems are examined as they relate to nursing practice. A life span approach is used. Corequisite: NUR 363. (2-0-2)

NUR 405 Role of the Nurse in Health Care Systems. Content focuses on the application of leadership and management principles to patient care situations encountered in a variety of settings. Professional, political, legal, and ethical issues are considered. Prerequisite: Four primary clinical courses 314-320 inclusive. (3-0-3)

NUR 405H Role of the Nurse in Health Care Systems. Focus is on the managerial components of health care delivery systems. Emphasis is placed on the role of the nurse as leader and manager. Theoretical and application perspectives are included. Ethical, political, and professional issues are presented. Offered to Graduate Entry Level students only. Prerequisite: Four primary clinical courses 314-320 inclusive. (3-0-3)

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NUR 406 Nursing and the Human Condition. Works of literature are used to explore issues of the human condition related to suffering, death, and professional ethics confronting nurses in professional practice. (3-0-3)

NUR 407 Autonomy and Heteronomy. Explores the tension between the requirements of the authentic self and the needs of society through the representative works of selected authors. (2-0-2)

NUR 408 Women's Health Care. Synthesizes and applies a broad base of knowledge in the humanities, biological, and social sciences in nursing practice to women's health across the life span. (3-0-3)

NUR 410 Educational Processes in Nursing. Theories of teaching-learning are examined and applied to nursing practice. (2-0-2)

NUR 411 Nursing for Health Promotion and Maintenance. Emphasis is given to health promotion activities for individuals, families, populations. A life cycle approach is used to develop strategies for risks identified in individuals and families. The role of the nurse related to legal, economic, social and management issues in health promotion is discussed. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses 314-320 inclusive. (5)

NUR 412 Nursing for Health Restoration and Support. Focus is on the integration of science, technology, and art of nursing practice with complex, acutely ill patients of all ages. Skills are enhanced in physical and psychosocial assessment, clinical decision making, and interventions for the acutely ill, high risk patient and their families. Health care trends, ethical and legal issues that effect the acutely ill child, adult and elderly individual are discussed. Student practice is in medical, surgical, gerontological, community, psychiatric, and parent child nursing areas. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses 314-320 inclusive. (5)

NUR 413 Nursing for Continued Care and Rehabilitation. Focus is on issues and common problems experienced by individuals of all ages with chronic physical and mental illnesses and disabilities. Emphasis is on the promotion of optimal functioning of the chronically ill and/or disabled individual and the family. Student practice is in medical, surgical, gerontological, community, psychiatric, and parent child nursing areas. Course offered for 5 weeks (Lec. 4, Clin. 18). Prerequisite: Four primary clinical courses NUR 314-320 inclusive. (5)

NUR 422 Basic Cardiac Arrhythmias. Self-paced mastery learning mode used to help students recognize and describe common disorders of cardiac rhythm, hemodynamic mechanisms and nursing implications. (2-0-2)

NUR 423 Intraoperative Nursing. Focus is on intraoperative phase of patient care. Prerequisite: NUR 314, 315, 361. (1-3-4)

NUR 424 Critical Care Nursing. Integrates pathophysiology, technology, and nursing practice of complex critically ill patients and their families throughout the lifecycle. Social, psychological and economic impact of critical care and nursing practice on society is discussed. Prerequisites: NUR 314, 315, 362 or equivalent, Level 5. (1-3-4)

NUR 441 Independent Clinical Study. Intensive independent study in a clinical area of nursing. (v)

NUR 449 Independent Study. Student contracts with nursing faculty for independent academic study in an area of nursing. (v)

NUR 451 Intermediate Pharmacology. Clinical pharmacokinetics and pharmacotherapeutics. Content specific biochemical and physiological mechanisms of drug actions. Focus on clinical application and synthesis from selected disease states. Prerequisite: NUR 361 or equivalent. (3-0-3)

NUR 472 Introduction to Normal and Clinical Nutrition. The focus of the course is nutrition and its relation to health and illness. Concepts to be explored include nutritive substances and processes, recommended dietary allowances, the basic four food groups, evaluation of nutritional status, and changing nutritional requirements throughout the life cycle. Drug and nutrient interactions, food misinformation, hospital diets, and specialized nutritional support techniques are also examined. (2-0-2)

NUR 501 The Use of Concepts, Models, and Theories in Nursing Practice. Emphasis of seminar course is on the use of models, the theoretical basis, and the operation of models in nursing. (2-0-2)

NUR 502 Role of the Nurse in Advanced Practice. Examination of professional nursing issues including legal, ethical, legislative, collaboration and collegiality, marketing and economical components. Models are examined that influence the scope of practice of nurses in advanced practice roles. (2-0-2)

NUR 503 Advanced Physical Assessment. Cognitive and clinical skills are enhanced from those developed in a basic physical assessment course. Cognitive and clinical skills are developed that are used in the provision of comprehensive care to adults within a hospital long-term care setting, and/or an ambulatory care setting. Prerequisites: RN licensure; license pending; validation exam; classified status. (2-3-3)

NUR 504 Management of Emergent Cardiopulmonary Situations. Focus is on the application of principles of advanced cardiac life support and emergency care to develop skills in understanding and managing acute respiratory and cardiac emergencies. Upon completion of this course, students have the opportunity to become ACLS certified. Prerequisite: BCLS certification. (1-3-2)

NUR 505 Ambulatory Diagnostics. Preparation in laboratory techniques necessary for the delivery of primary care practice is provided. (1-3-2)

NUR 506 Maternal-Infant Assessment. Analysis of the interplay between the child, parent, and environment as a predictor of infants and children who are vulnerable for developmental alterations. Upon completion of this course, students have the opportunity to become NCAST certified for one additional credit hour. SP (3-0-3; 3-1-4 [for certification])

NUR 507 Physical Activity: Exercise in Health and Disease. This seminar includes research-based discussions related to physical activity and exercise across numerous client populations, children to elderly, health to illness states, community to hospitalized clients. Emphasis is placed on assessment of physical activity, reliability and validity of current assessment measures, exercise tolerance testing, prescription, and exercise in health and disease. Prerequisite: One graduate level research course. (3-0-3)

NUR 508 Women, Feminism, and the Health Care Professions. The interface between feminism, gender, and the health care professions is explored. The sociopolitical context, the caring phenomena, and ethics serves as a framework. (3-0-3)

NUR 515 Advanced Practitioner as Teacher. An overview of the philosophy of education, teaching and learning theories, assessment and evaluation of learning, and teaching methodologies is studied within the context of application to public and professional education. (2-0-2)

NUR 516 Education Program Development and Design. Androgical principles are applied in the process of designing and developing educational programs. Transferrable concepts which may be applied to continuing and/or academic programs are considered. (3-0-3)

NUR 517 Evaluation in Health Care Education. Evaluation as a process of systematic inquiry which allows for the assessment of desired outcomes is explored through the analysis of various evaluation models. The evaluation process of identifying outcomes, collecting, interpreting, and using evaluation data in nursing practice, management, and education is examined. (3-0-3)

NUR 521 Nursing Research: Critique for Practice. Research studies are analyzed and evaluated relative to an identified clinical problem. Includes concepts, methods, and strategies inherent to the research process with a focus on design, internal and external validity, sampling, measurement, and ethical issues. Prerequisite: PVM 541 or equivalent. (2-0-2)

NUR 522 Health Promotion and Disease Prevention. Models are used to discuss health states and to design health promotion strategies for community groups. Topics include target behaviors for intervention, forces influencing life style, and nursing practice techniques for improving health outcomes. (3-0-3)

NUR 523 Concepts and Issues in Clinical Nutrition. Current concepts and issues in clinical nutrition are examined. All age groups are included. Topics include: nutritional assessment, management of critically ill and immunosuppressed patients, ethical issues, physical fitness

and athletic performance, obesity and other nutritional disorders. Prerequisite: Previous nutrition course. (2-0-2)

NUR 524 Scientific Basis of Cancer Treatment. Focus is on the scientific basis of diagnostic and therapeutic modalities of malignant disease including surgery, radiation therapy, chemotherapy, immunotherapy, and bone marrow transplantation. Relevant theories, research, and clinical applications are examined. (2-0-2)

NUR 525 Management Issues in Nursing. The theoretical and practical aspects of current issues in nursing management are explored. Issues include internal organization, power structure, external forces, cost management and quality assurance. (3-0-3)

NUR 527 Applied Pharmacology for Nurse Practitioners. Designed to provide primary care nurse practitioners with knowledge of pharmacotherapeutics for common acute and chronic health conditions across the life span. (3-0-3)

NUR 528 Psychopharmacology for Advanced Nursing Practice. Addresses pharmacotherapeutics for psychiatrically ill individuals and populations. Includes medications used for the diagnosis and treatment of psychiatric disorders and monitoring the physical, behavioral and psychological responses to such interventions. Prerequisite: NEU 551 or equivalent. (3-0-3)

NUR 529 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug actions are discussed. (2-0-2)

NUR 530 Pharmacotherapeutics. Advanced principles of drug intervention is discussed. Issues of drug action including uptake, distribution and metabolism related to all drug categories is emphasized. Focus is on assessment and nursing intervention related to drug therapy. Prerequisite: NUR 529. (1 - 6)

NUR 531 - 536 Clinical Seminars in Master of Science Nursing Practice. A matrix of nursing courses that allows concentrated study in a specialized area of nursing practice at the master's level.

NUR 531A Basic Principles of Anesthesia Nursing. Principles and skills basic to the practice of anesthesia are discussed. Focus is on patient assessment and planning care. Prerequisite: NAN 521, PHY 555, PPH 523. (3-0-3)

NUR 531B Advanced Principles of Nursing Care in Anesthesia Nursing. Anesthesia principles related to surgical specialties and perioperative management are discussed. Emphasis is on understanding of anatomic, physiologic/pathologic principles, and use of pharmacologic intervention. Prerequisite: NUR 530, 531A, PHY 556. (3-0-3)

NUR 531C Anesthesia Nursing Care of the Pediatric and Obstetrical Patient. Anesthesia related to the specialty areas of pediatrics and obstetrics is discussed. Specific assessment and planning skills needed for these

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patient groups are highlighted. Prerequisite: NUR 531B. (3-0-3)

NUR 532A Community Health Assessment: Basic Concepts and Methods of Community Health. Introduction to concepts and methods of assessing health status among community groups is presented. Theories and epidemiological frameworks are incorporated into the health assessment of groups and populations. (2-0-2)

NUR 532B Community Health Assessment: Assessment, Diagnosis and Community Planning. Theoretical frameworks are used for the diagnosis of and planning for data based community health problems. Prerequisite: NUR 532A. (3-0-3)

NUR 532C Community Health Assessment: Program Implementation and Evaluation. Formulation of implementation strategies and evaluation schemes for program development are discussed. Emphasis is on evaluation methods and innovative nursing practice in the community. Prerequisite: NUR 532B. (2-0-2)

NUR 532D Home Health Delivery Systems. Focus is on home care delivery systems, provision of quality care to the patient in the home, and administrative theories to the management of agency and staff. (3-0-3)

NUR 532E Nursing Care of the Patient in the Home. Focus is on common clinical problems in home care. Discussion includes comprehensive case management of physiological and psychosocial problems associated with the care of home bound persons of all ages. Prerequisite: NUR 532D. (3-0-3)

NUR 532F Home Health Management. An overview is given of the history and trends that affect the current home health environment. Regulatory, legislative, and competitive forces impacting home care delivery are discussed. Prerequisite: NUR 532E. (3-0-3)

NUR 533A Assessment and Screening in Parent/Child Nursing. Evaluation of assessment and screening tools in the care of parents, children and families is presented. Emphasis is on risk assessment. (3-0-3)

NUR 533B Nursing Care in High Risk Pregnancy. Focus is on recognition of actual and potential complications of pregnancy. Emphasis is on anticipatory guidance and nursing management. Prerequisite: NUR 533A. (3-0-3)

NUR 533C Nursing Care of the High Risk Neonate. Focus is on actual and potential complications of the neonatal period. Emphasis is on care of the premature infant. Prerequisite: NUR 533A. (3-0-3)

NUR 533D Nursing Care of the Acutely Ill Child. Management of acute health problems in the pediatric age groups is discussed. Developmental issues, research analysis patient and family teaching is incorporated. Prerequisite: NUR 533A. (3-0-3)

NUR 533E Nursing Care of the Chronically Ill Child. Management of chronic health problems in the pediatric

age groups is discussed. Family functioning, long term care issues, emotional, social, economical implications are incorporated. Prerequisite: NUR 533 A. (3-0-3)

NUR 534A Nursing Care of the Ill Adult. Focus is on the physiological and psychological concepts applicable to the medical and surgical adult patient. Advanced practice is addressed with application of concepts to particular area of student interest. (3-0-3)

NUR 534B Nursing Care of the Critically Ill Patient. Concepts from basic and applied sciences of critical care nursing and research based strategies for implementation are applied to critically ill population of all age groups. Prerequisite: PHY 555, 556, PPH 523, 524. (4-0-4)

NUR 534C Nursing Care of the Chronically Ill Adult. The impact of chronic illness on the adult is explored. Strategies for nursing management of common problems are emphasized. (3-0-3)

NUR 534D Nursing Care of the Cancer Patient. Focus is on clinical manifestations of infection, sepsis, spinal cord compression, nausea and vomiting, and stomatitis observed in cancer patients. Pathophysiological bases and interventions to prevent or minimize these manifestation are discussed. Emphasis is on the physiological and psychological sequelae. Prerequisite: NUR 524, PPH 522, permission of instructor. (3-0-3)

NUR 534E Nursing Care of the Orthopaedic Patient. Skeletal function and movement are the foundations for discussion of nursing care related to selected orthopaedic problems. All age groups are included. Process and outcome criteria for common orthopaedic nursing diagnoses are emphasized. Offered in 1995. (4-0-4)

NUR 534F Nursing Care of the Neurological Patient. Nursing care of patients with nervous system dysfunction is explored on a continuum from critical care through rehabilitation. Pre or Corequisite: NUR 534A, PPH 524. Offered in 1995. (3-0-3)

NUR 534G Nursing Care of the Transplant Patient. Research related to transplantation including immunology, infectious disease, and current practice of pre, intra, and postoperative care, organ procurement, ethical, and psychological issues is discussed. Prerequisite: NUR 529, 534A, PHY 556, PPH 524. Offered in 1995. (4-0-4)

NUR 534H Nursing Care of the Cardiopulmonary Patient. Research based concepts are studied of risk factor modification, activity tolerance and prescriptions, quality of life, limiting disease progression and evaluating rehabilitation benefits across the lifespan. Prerequisite: PHY 555, 556, PPH 524. (3-0-3)

NUR 534M Nursing Care of the Trauma Patient. Various physiological and psychosocial concepts are applied to the trauma patient. Patients across the life span are considered. (3-0-3)

NUR 535A Assessment and Evaluation in Delivery of Mental Health Services. Focus is on the multiaxial assessment and interventions of major psychiatric

syndromes within the context of the changing mental health care system. (3-0-3)

NUR 535B Nursing Care of the Psychiatric Patient. Theoretical basis for psychotherapeutic nursing interventions is examined from a developmental perspective. The collaborative work of nurse and client is examined from initial contact through termination. Prerequisite: NUR 535A. (3-0-3)

NUR 535C Group Psychotherapy. An in depth analysis of theory and research is presented as a basis for the clinical practice of group psychotherapy. Prerequisite: BHV 526. (3-0-3)

NUR 536A The Aging Adult: Wellness and Frailty. The focus is assessment and nursing management for healthy and frail elderly to promote, maintain, and restore optimal functioning. (3-0-3)

NUR 536B Nursing Care of the Older Adult. Management of common health problems of older adults is studied. Emphasis is on assessment and intervention related to health promotion, health maintenance, and restorative care. (3-0-3)

NUR 541 Master's Practica. A minimum of 12 quarter hours of specialty practice are planned conjointly by the master's student and faculty member. Prerequisite: or Corequisite: Selected NUR 531-536, RN license. Clinical conference is included. (v)

NUR 547 Independent Clinical Study. Intensive independent study in a specialty clinical area of nursing is provided with faculty contract. Prerequisite: NUR 541. (v)

NUR 549 Independent Study. Contract with faculty member for conducting an independent academic study in a specialized area of nursing. (v)

NUR 551 Evaluation of Theories. Various methods of theory analysis are discussed and selected theories are analyzed. Emphasis is on utility of theories in nursing practice, education, and management. Prerequisite: NUR 501 or equivalent. (2-0-2)

NUR 553 Impact of Complex Systems on Health Care. Focus is on the impact of economic, political, technological, regulatory, and competitive forces on health care. (2-0-2)

NUR 561 Theoretical Basis of Genetic Health. Comprehensive examination of concepts and principles of clinical genetics is provided as foundation for advanced nursing practice in primary, secondary and tertiary health care. (3-0-3)

NUR 562 Advanced Principles in Genetic Health. A systematic analysis of advanced concepts and principles of clinical genetics is provided, emphasizing common models of genetic health problems and related therapeutic management. Prerequisite: NUR 561. (3-0-3)

NUR 571 Using Research in Clinical Practice. Issues associated with diffusing nursing research and the

challenge to incorporate research findings into the practice of nursing are studied. Theories and conceptual frameworks are critically analyzed that describe processes for using research to change nursing practice. Prerequisite: NUR 521, PVM 541 or equivalent. (2-0-2)

NUR 580 Nurse Doctorate; Issues in Practice. Focus is on in depth discussions of clinical issues related to a practice area.

NUR 580A Issues in Pain Relief. Students explore the various theories of pain and how pain relief strategies evolve from these theories. The application of this knowledge to selected nursing practice situations is emphasized. (2-0-2)

NUR 581 - 585 Clinical Seminars in Nurse Doctorate Practice.

NUR 581A Primary Health Care Concentration Nurse Practitioner Seminar I. Focus on development of primary health care clinical judgement. Content is organized around concepts of health maintenance, health promotion, health and risk appraisal across the lifespan. Identification and management of common symptoms, signs and problems are incorporated within a multidisciplinary focus. Prerequisite: NUR 503, PHY 555, 556. (3-0-3)

NUR 581B Primary Health Care Concentration Nurse Practitioner Seminar II. Focus on development of critical thinking and clinical decision making skills in the provision of primary health care services to selected clients across the lifespan. Recognition, assessment, and management of simple acute and uncomplicated chronic illnesses within a multidisciplinary focus are emphasized. Prerequisite: NUR 581A. (3-0-3)

NUR 581C Primary Health Care Concentration Nurse Practitioner Seminar III. Focus on the recognition, assessment, and management of clients and families with complex primary health care problems across the life span. Provision of services within a multidisciplinary approach and appropriate use of resources are emphasized. Prerequisite: NUR 581B. (3-0-3)

NUR 581D Primary Health Care Concentration Nurse Practitioner Seminar IV. Emphasis on refinement of cognitive and clinical judgement. Issues related to family, bio-socio-psychological, epidemiological, and community health care knowledge are integrated. Students maximize assessment and management skills while dealing with clients with multidimensional problems in various healthcare settings and systems. Prerequisite: NUR 581C. (3-0-3)

NUR 583A Advanced Psychiatric Nursing Care of Children and Adolescents. Biological and developmental perspectives are used to critically examine theory and research related to child psychiatric nursing phenomena. Emphasis is on assessing childhood psychopathology with its impact on adaptation, learning, and social relationships. (3-0-3)

NUR 583B Psychiatric Nursing Care of the Older Adult. Theoretical and clinical knowledge of common

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psychiatric issues that confront older adults is expanded. Common issues to be addressed include: depression, dementia, paranoia, and somatization. Prerequisite: BHV 528 or equivalent. (3-0-3)

NUR 583C Advanced Psychiatric Nursing Care of Selected Adult Populations. Integrated framework for the comprehensive (multiple system) analysis of the etiology, assessment, and treatment of selected psychiatric disorders for advanced nursing practice. Emphasis is on presentation of theoretical and research perspectives (psychological, sociocultural, cognitive/behavioral, and biological) affecting the individual, their behavior, immediate and distant environment. (3-0-3)

NUR 583D Ethics in the Clinical Setting. Ethical issues for a specialty clinical area are analyzed using ethical theories, principles, and values. Ethical decision making skills are developed. (1-1-2)

NUR 583E Issues in Critical Care. Seminar analyzes concepts, practice, and research in critical care. Students integrate knowledge and develop strategies to advance critical care nursing practice. Pre or Corequisite: NUR 534B or equivalent. (2-0-2)

NUR 584A Advanced Management of the At Risk Neonate. Assessment, stabilization, and management of infants at risk for common problems associated with prematurity. Prerequisite: PPH 525, NUR 533C. (3-0-3)

NUR 584B Advanced Management of the Acutely Ill Neonate. Management of complex disturbances in the neonate. Emphasizes alterations in the cardiopulmonary, neuromuscular, renal, gastrointestinal and multisystem function. Prerequisite: PPH 525, NUR 533C. (3-0-3)

NUR 585A Advanced Nursing Care of Families with Genetic Health Problems. A theoretical and research-based approach to advanced nursing practice of children and families with genetic problems is presented. Emphasis is placed on primary care (health promotion and disease prevention), secondary, and tertiary prevention across the life span. Prerequisite: NUR 561, 562. (3-0-3)

NUR 585B Realities of Genetic Health: Ethics, Law and Policy. An interactive consideration of issues related to implementing genetically influenced health care across the lifespan. Topics will focus on the integration of genetic health, ethics, law and health care policy into the role of the advanced nurse practitioner. Prerequisite: HSM 560. (2-0-2)

NUR 588 Doctor of Nursing Project. An individual or a group of students contract with faculty members to plan, initiate, and evaluate a research based change in nursing practice. (2)

NUR 591 Doctor of Nursing Practica. A minimum of eight (8) credit hours of specialty practice are planned conjointly by the nurse doctorate student and faculty member. Prerequisite or Corequisite: Selected NUR 581-585.

NUR 596 Nurse Doctorate Seminar. Student and faculty identify and explore issues and problems that evolve as students develop and enact dimensions of the nurse doctorate role. Prerequisite: NUR 502 or equivalent, 571, 4 q.h. of NUR 591. (2-0-2)

NUR 599 Independent Study. Student contracts with faculty member for independent academic study in a selected area of nursing. (v)

NUR 601 Theory Development. Theory construction is explored through the study of the philosophy of science. Course extends over two quarters. Prerequisite: NUR 501 or equivalent. (4-0-4)

NUR 622 Concepts, Models, and Research Methods in the Study of the Life Cycle. An overview of theories is included of individual development throughout the life span. Innovative research methodologies are explored to study individual development in the context of the environment. Prerequisite: NUR 501 or equivalent, BHV 520 or 521. (3-0-3)

NUR 623 Administrative Issues in Education. An interactive approach relating research and practice in higher education to structures and processes of nursing education administration. Prerequisite: NUR 601 or equivalent. (3-0-3)

NUR 671, 672 Research Design and Methods I, II. Promoted are the development, integration, and application of knowledge, attitudes, and skills requisite to functioning as a clinical nurse scientist. Emphasized are the critical appraisal of selected measuring mechanisms and the design of clinical nursing research study. Prerequisite: PVM 543 or 8 q.h. graduate statistics. (3-0-3) (3-0-3)

NUR 675 Qualitative Research Methods. Focus is on selected issues in the design, conduct, and reporting of qualitative research. Experience with data management and analysis included. Prerequisite: NUR 672. SU (2-0-2)

NUR 688 Directed Research. Independent research experience to test theory and/or gather data under the guidance of a faculty member is provided. Corequisite NUR 571 or 672 (1-4)

NUR 689 Research Grantsmanship. Information and skills essential to the process of development and submission of a research grant application is provided. Prerequisite: NUR 571 or 672, or permission of instructor. (2-0-2)

NUR 691 Doctorate of Nursing Science Practica. At least 20 credit hours of individually designed courses of independent study are planned conjointly by the doctoral student and the academic advisor. (v)

NUR 696 Doctorate of Nursing Science Seminar. The components of clinical practice in Nursing is critically analyzed at the Doctor of Nursing Science level. Prerequisite: Minimum 6 q.h. NUR 691 and no more than 10 q.h. of NUR 691. (2-0-2)

NUR 699 Dissertation Research. Contract with faculty members and Associate Dean for Nursing Education for independent research. Doctoral candidate must be enrolled for at least three quarter hours each quarter until dissertation has been defended. Prerequisite: Completion of clinical defense. (v)

OBSTETRICS AND GYNECOLOGY

OBG 601 Core Clerkship in Obstetrics and Gynecology. A study of the female reproductive tract with emphasis on routine gynecologic health care maintenance and patient education. Identification and management of high-risk pregnancy, infertility and other endocrinopathies, gynecologic oncology, family planning, psychosomatic disorders and normal psychological changes in obstetrics and gynecology as well as gynecologic surgery are some of the areas covered in detail. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Fenner.

OBG 605 Normal Obstetrics. Elective clerkship in normal obstetrics. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Merrick.

OBG 621 Advanced Obstetrics. This elective emphasizes one-on-one teaching, and provides extensive experience in the management of normal and high-risk patients during labor and delivery. Students will admit and follow patients during labor and postpartum, and perform or assist at all deliveries and operative procedures under the supervision of the resident and attending staff. Improving skills in performance of the pelvic examination is a major goal of this elective. Reading material will cover the physiology of labor, obstetric anesthesia, fetal monitoring, and techniques of operative delivery. Extensive exposure to office antepartum management will also be provided. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Meserow.

OBG 631 Maternal Fetal Medicine/High Risk Obstetrics. Emphasis of this elective is on the identification and management of high risk pregnancy. Ultrasonography, amniocentesis, medical and surgical complications of pregnancy, and operative obstetrics are some of the specific topics dealt with in detail. Students participate in ante-partum management of hospitalized and ambulatory pregnant patients with high risk conditions. Additional exposure to intra-partum problems is obtained through daily clinical teaching rounds and through follow-up of high-risk ante-partum patients as they go through labor and delivery. Special experiences and involvement in genetic counseling, prenatal diagnosis and obstetric ultrasound are also available. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Strassner.

OBG 661 Gynecologic Oncology. Gynecologic oncology encompasses the diagnosis, management and follow-up of female reproductive tract tumors. Students are introduced to the use of diagnostic procedures such as colposcopy, laparoscopy, and biopsies, as well as cancer surgery and treatment with chemotherapy. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Yordan.

OBG 666 Ambulatory/Reproductive Health Care. Students are provided additional clinical experience in family planning practices. Students interview and examine ambulatory patients, prescribe methods of family planning and conduct follow-up under supervision of the staff. There is a limited time in the main operating room doing minor and major gynecologic procedures. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Fenner.

OBG 667 Reproductive Endocrinology and Infertility. This elective provides clinical experience in diagnostic evaluation and therapeutic management of couples with infertility and women with gynecologic endocrine problems. The students participate in routine diagnostic studies, such as ovulation timing, postcoital tests, and endocrine evaluation and are introduced to the use of diagnostic and therapeutic procedures such as hysterosalpingography, ultra-sonography, laparoscopy, and hydrotubation. Students scrub on surgical reconstructive procedures involving the female reproductive system, participate in the activities of the in vitro fertilization program. Laboratory experience in performing hormone radioimmunoassay, sperm separation, antisperm antibody testing and other procedures may also be included. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Radwanska.

OCCUPATIONAL THERAPY

OCC 461 Health and Development. The nature of health, illness and disability and their effect on the fulfillment of developmental roles and functions throughout the life span. FA (3-0-3) Opacich.

OCC 463 Principles of Movement. The biomechanics of movement and the application of neuromusculoskeletal function to the performance of daily living tasks and activities are emphasized. FA (2-2-3) Morgan.

OCC 465 Group Dynamics. Didactic and experiential activities designed to familiarize the student with basic principles underlying group process and group behavior and clinical application of these principles in occupational therapy are studied. Prerequisites: OCC 501, PSY 501. WI (2-2-3) Lane, Cambron.

OCC 501 Activity Theory and Skills. The focus is on teaching, analysis and therapeutic application of activities. Analysis, history and skills in areas of play/leisure, self-care, homemaking, work and development of skills in performing selected activities are studied in depth. Theoretical constructs which provide the basis for occupational therapy practice are explored. FA (2-4-4) Silerzio, Regan, Staff.

OCC 502 Occupational Therapy History and Philosophy. An overview of the historical foundations of occupational therapy as they relate to the frames of reference and theoretical perspectives upon which the field is based. Prerequisites: OCC 461, 501.[el] WI (3-0-3) Adams.

OCC 506 Medical Conditions Seminar. A presentation and discussion of selected medical, surgical, neurological

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and orthopedic conditions with emphasis on their etiology, treatment and prognosis. SP (3-0-3) Opacich.

OCC 510 Special Topics in Geriatrics Seminar. Seminars that address clinical and nonclinical issues that are specific to the role of occupational therapy with geriatric populations in a changing society. SP (3-0-3) Nolinske.

OCC 511 Occupational Therapy Interventions I. Students learn theories and conceptual models for intervention in the disease processes of psychosocial disorders which can be applied in medical, educational, and community settings. Simulated and actual patient management issues relative to psychosocial disorders are presented and discussed. Includes preclinical experiences in psychiatric settings. Prerequisites: OCC 465, 502, 503. SP (v-v-5) Bloom, Ebell.

OCC 512 Occupational Therapy Interventions II. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches to occupational therapy evaluation and on the treatment of individuals with nervous system disorders. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experience in selected settings. Prerequisites: OCC 463, 511, 541, NEU 501. FA (v-v-5) Nolinske.

OCC 513 Occupational Therapy Interventions III. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches of occupational therapy evaluation and on the treatment of physically disabled individuals. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experiences in selected settings. Prerequisite: OCC 512. FA (v-v-6) Nolinske.

OCC 516 Interventions I Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the area of psychosocial dysfunction. Corequisite: OCC 511. SP (v-v-1) Bloom, Ebell.

OCC 517 Interventions II Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 512. SU (v-v-1) Nolinske.

OCC 518 Interventions III Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 513. FA (v-v-1) Nolinske.

OCC 521 Etiology of Occupation. A critical review of theories and practices of occupational therapy with projection of future models of practice. Includes examination of scientific knowledge, models of health care, sociological features of occupational therapy practice, and the study of human occupation and its description in illness. Prerequisite: OCC 502. SU (4-0-4) Adams.

OCC 531 Principles and Methods of Education. An exploration of the use of behavioral objectives, taxonomical levels of learning, and the application of the theories of classical and contemporary theories. A variety of media and techniques to enhance clinical and classroom teaching will be emphasized. SU (2-0-2) Hughes.

OCC 533 Principles and Methods of Supervision. Introduction to the supervisory process based on principles related to education, interpersonal processes, and management. Prerequisite: OCC 531. Corequisite: OCC 545. FA (3-0-3) Hughes.

OCC 535 Issues and Perspectives in the Treatment of Children. A multi-disciplinary view of physiological, emotional and environmental phenomena affecting children. Stresses clarification of occupational therapy in the prevention or remediation of dysfunction. Prerequisite: OCC 461. WI (3-0-3) Opacich.

OCC 541 Tests and Measurements in Occupational Therapy. Administration, scoring, interpretation, and reporting of selected tests and informal assessments useful in an occupational therapy evaluation of clients of varying ages and disability. Prerequisite: OCC 463, 502. SP (2-4-4) Opacich.

OCC 545 Occupational Therapy Management in the Health Care System. Exploration and involvement in administrative activities related to effective delivery of occupational therapy services; includes budgeting, personnel policies and long-and short-term program planning. Prerequisite: organizational behavior course, OCC 521. FA (3-0-3) Brady.

OCC 582 Application of Computer Technology in Treatment, Management, and Research. An introduction to the computer in which students will apply their computer knowledge to problems and management in clinical areas related to patient treatment, report writing, file/data management, and data analysis. SU (v-v-3) Academic Computing Resources Staff.

OCC 585 Research Proposal. Completion of a departmental proposal prior to the implementation of a research project. Prerequisite: OCC 581. FA (0-v-3) Lane, Staff.

OCC 590 Advanced Practice Seminar. Analysis and synthesis of issues related to clinical and ethical considerations and their implications for program development in various practice arenas. Prerequisite: OCC 595. SU (6-0-6) Hughes, Opacich, Nolinske, Lane.

OCC 595, 596 Advanced Fieldwork I, II. Supervised field experiences applying theoretical concepts in occupational therapy with individuals having psychosocial/physical dysfunctions. Prerequisites: All previous coursework. Full-time student status is continued while engaged in fieldwork. WI SP (v-v-1) (v-v-1) Nolinske.

OCC 598 Thesis. Completion of a departmental project, based on the research proposal, for a master's degree

thesis relevant to occupational therapy Prerequisite: OCC 585. SP SU (0-v-3) Lane, Staff.

OCC 599 Independent Study. Creative project designed by the student and supervised by faculty (v-v-v)

PEDIATRICS

PED 601 Core Clerkship in Pediatrics. The principles and practice of care from birth through adolescence are studied by direct patient contact. The primary objective is to provide an opportunity for students to become proficient in the clinical basis of pediatric diagnosis and therapy. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Soglin.

PED 603 Introduction to Newborn Medicine. This course is an introduction to the care of sick and premature newborn infants in the intensive care settings with emphasis on the normal sequence of events in the birth-recovery period, disruptions to that sequence and adaptation of the baby during the postpartum period. Care of the most common complications occurring at this age will be emphasized. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Bigger.

PED 604 Adolescent and Young Adult Medicine. This course provides direct experience in the care of patients hospitalized on the inpatient adolescent unit. There will also be an opportunity to see patients in the outpatient off of the course director as well as three off-campus sites for general adolescent health care, including family planning and sexually-transmitted disease treatment. The student is provided experience with managing disease processes which are unique to adolescents or manifested differently in this age group. There will be additional opportunity to see adolescents being evaluated and treated for eating disorders and other psychological problems. Prerequisite: PED 601 or MED 601. FA WI SP SU [4-8 weeks] Strokosch.

PED 608 Behavioral Pediatrics. This elective is offered to students interested in improving their understanding of children and families and developing their skills in the area of behavioral pediatrics under direct supervision of the course director. Students will work in both the general pediatric and behavioral consultative settings. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Richtsmeier.

PED 610 Pediatric Subinternship. The subintern will function in a capacity similar to an intern on the infant/children or adolescent service. Supervision will be provided by senior residents and faculty physician. Students are expected to take call every fourth night. Approval of course director required to drop the course within eight weeks of the start date. Prerequisite: PED 601, fourth year standing. Christ Hospital site for Rush students only. FA WI SP SU [4 weeks] Soglin (Rush), Roy (Christ).

PED 611 Pediatric Cardiology. Both ambulatory and inpatient experience are obtained in caring for children with congenital and acquired heart disease. Clinical history and physical findings are correlated with x-ray and electrocardiographic echocardiographic, and cardiac catheterization data. The student will participate medical and surgical management of patients, as well as learn the

fundamentals of cardiac testing. The course includes didactic sessions, outpatient clinics and inpatient service. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Cutilletta.

PED 615 Chronic Diseases in Children. Based at Shriner's Hospital for Crippled Children, students will participate in an active inpatient and outpatient program which provides referral services to children with musculoskeletal disorders, neural tube defects and other chronic diseases. Prerequisite: PED 601. FA WI SP SU [4 weeks] Vogel.

PED 621 Pediatric Endocrinology. This rotation provides students with a problem-oriented approach to pediatric endocrinology. All aspects of pediatric endocrinology are covered but particular emphasis is placed on normal and abnormal aspects of growth and pubertal development. The elective aims to highlight the role of the primary care provider in the initial evaluation of the pediatric patient with a suspected endocrine disorder and to provide the student with an introduction to specialized diagnostic endocrine testing and management of the endocrine patient. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kreiter.

PED 622 Emergency Pediatrics. Forty hours per week is spent evaluating patients in the emergency room under the supervision of an attending pediatrician. Evening shifts (until 10 p.m.) are included. The student is required to maintain a log of patients seen and procedures performed, to attend teaching conferences in the E.R. and to present an informal lecture on a pediatric emergency medicine topic. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kramer.

PED 624 Pediatric Intensive Care. Pediatric intensive care provides an experience in the care of the very sickest hospitalized children. The student is an integral part of a team and will learn (1) the initial evaluation of the patient, (2) organization of care, (3) procedures (arterial catheterization, central line placement) and (4) pediatric resuscitation techniques. Prerequisite: PED 601 and fourth year status. FA WI SP SU [4-8 weeks] Boyer.

PED 626 Pediatric Nephrology. Students gain experience in the care of children with renal problems in hospitalized and ambulatory patients. Emphasis is on participation on an active consulting service with concentration on normal and abnormal renal functions, electrolyte imbalances, proteinuria, hematuria, hypertension, urinary tract infection and developmental diseases of the kidney. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Heilicz.

PED 631 Pediatric Radiology. Students observe radiologic procedures and participate in analyses, reviews, and general radiology conferences. Analysis involves assessment of appropriateness of an examination, detection of pertinent findings, interpretation of findings, and synthesis of interpretation and clinical presentation into reasonable diagnosis. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Han.

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PED 632 GI/Nutrition. This clerkship will provide a core set of didactic materials and discussions. Emphasis will be on understanding the pathophysiology of, and basic approach to, common clinical problems. The nutrition component will include fundamentals of enteral and total parenteral nutritional management. Students will be expected to perform a literature review of one or more topics. Prerequisite: PED 601. FA WI SP SU [4 weeks, possible 2 weeks of GI or 2 weeks of Nutrition] Sandler.

PED 641 Pediatric Allergy/Clinical Immunology. This elective teaches the clinical approach to the problems of allergy, other immune-mediated diseases and immunodeficiency in children and adults. Diagnosis and treatment of outpatients with commonly encountered IgE-mediated diseases (allergic rhinitis, asthma, eczema and urticaria), connective tissue diseases and immunodeficiency syndromes are emphasized. Participating students have primary responsibility for following inpatients admitted by or referred to the allergy/immunology service and reporting to the attending physician-on-service on daily rounds. However, primary emphasis is on outpatient care. Research conferences and chart review conferences (weekly) and journal club (biweekly) are regularly scheduled. Rotators also learn about skin testing techniques, spirometry and immunological tests performed by the Office of Consolidated Laboratory Services. Prerequisite: PED 601. FA WI SP SU [4-12 weeks] A. Gewurz.

PED 642 Pediatric Hematology/Oncology. This course provides an introduction to the care of children with a variety of hematologic disorders, or malignancies of childhood. Students will attend consultations with radiologists, pathologists, and surgeons involved in the diagnosis of malignant diseases. Ward rounds are made daily for inpatients on the service and consultations. Outpatient clinicals are held five days a week. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Green.

PED 646 Pediatric Infectious Diseases. The focus is on clinical and laboratory evaluation of pediatric infections. An active consultation service provides ample opportunity for patient evaluation and follow-up. Correct use of laboratory facilities is stressed. Pathophysiology of infectious diseases, differential diagnosis, and antibiotic use are discussed on daily ward rounds and weekly conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks] Boyer.

PED 651 Pediatric Neurology. This fourth year medical student will become acquainted with the broad scope of pediatric neurology with an emphasis on the basic examination of children with neurologic and developmental problems. Basic interpretation of common neuroradiologic studies, as well as basic skills in the neurologic and developmental examinations will be emphasized. Prerequisite: PED 601. FA WI SP SU [4 weeks] Heydemann.

PHARMACOLOGY

PHR 301 Introduction to Pharmacology. Basic concepts in pharmacology focusing on drug actions, reactions, and interaction. WI (3-0-3) Moon.

PHR 501 Medical Pharmacology I. Introduction to the physiochemical factors governing drug receptor actions and the major areas of autonomic, diuretic, anti-inflammatory, acetocoid and anesthetic/analgesic pharmacology. Prerequisites: BCH 472, NEU 451, PHY 452. FA (4-1-4) [47 hours] McLeod.

PHR 502 Medical Pharmacology II. Topics include the pharmacology of antibiotics and cardiovascular and respiratory agents, hypoglycemic agents, drugs acting on the blood and blood-forming organs, neuropharmacology and psychopharmacology. Prerequisite: PHR 501. WI (3-0-3) [29 hours] McLeod.

PHR 503 Medical Pharmacology III. cancer chemotherapeutic agents. Prerequisite: PHR 502. SP (2-0-2) [23 hours] McLeod.

PHR 521 Laboratory Instrumentation. The course covers the principles and applications of experimental equipment. Instrumentation will include: ultraviolet and visible spectrophotometry, spectrofluorometry, thin-layer chromatography, column chromatography, high pressure liquid chromatography, atomic absorption, liquid scintillation spectrometry, isotope use and handling, pH adjustment, sample weighing, melting point determination, hematocrit determination, centrifugation, and glassware cleaning. SP (0-6-3) Parkhurst.

PHR 529 Introduction to Graduate Pharmacology. Research and clinical applications of autonomic pharmacology and the basic principles of pharmacology. WI (3-0-3) Prancan.

PHR 541 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug action are discussed. WI (2-0-2) Nora.

PHR 542 Pharmacotherapeutics. The use of drugs in the diagnosis, prevention, and treatment of disease is presented. SP (1 to 6 credits) Nora.

PHR 551 Pharmacokinetics. Basic principles of the dynamics of absorption, distribution, and elimination under normal conditions and of selected disease states are presented. Prerequisite: PHR 503. WI (3-0-3) Nora, Parkhurst.

PHR 590 Special Topics in Pharmacology. The course is designed to allow the student flexibility in independently pursuing a particular area of interest. May be taken for one or more terms. (v-v-v) Staff.

PHR 591 Advanced Topics in Pharmacology. A series of faculty and student presentations and discussions addressing any advanced topic related to pharmacology. FA WI SP (2-0-2) Prancan.

PHR 598 Research in Pharmacology. By special arrangement. (v) Staff.

PHR 599 Independent Study. (v)

PHR 611 Neuropharmacology I. A seminar course presenting both preclinical and clinical aspects of drugs used in the treatment of neurologic and psychiatric disorders. Prerequisite: PHR 503. FA (3-0-3) Klawans.

PHR 612 Neuropharmacology II. Continuation of PHR 611. WI (3-0-3) Klawans.

PHR 613 Neuropharmacology III. Continuation of PHR 612. SP (3-0-3) Klawans.

PHR 622 Experimental Models in Pharmacology. A laboratory course concerned with the techniques involved in preparing experimental animal and tissue models for research. SP (0-8-4) Prancan.

PHR 691 Pharmacology Seminar. FA WI SP (1-0-1) Staff.

PHR 699 Thesis Research. (v)

PHYSIOLOGY

PHY 451 Physiology I. A comprehensive physiology course which deals with essentially all of the major organ systems except the CNS. Concept formation and problem solving are stressed. Lectures are supplemented by small group discussions and laboratory exercises. Students are expected to discuss assigned study questions in the group discussions. Laboratory exercises are divided between conventional experiments and computer simulations of physiological systems. FA (4-2-5) [64 hours] Rovick.

PHY 452 Physiology II. Continuation of PHY451. Prerequisite: PHY 451. WI (5-2-5) [58 hours] Rovick.

PHY 502 Introductory Membrane Biophysics. Study of fundamental processes involved in movement of ions across membranes, excitability in nerve and muscle, equivalent circuit analysis, artificial membrane systems, structure of membranes, and active transport processes. (4-0-4) Cohen.

PHY 503 Physiology of Striated Muscle. Topics include fundamentals of excitation-contraction coupling, mechanics of muscle, equivalent circuit analysis, muscle biochemistry, and developmental aspects of nerve and muscle. (4-0-4) Rios.

PHY 504 Neurophysiology. This course presents a conceptual approach to the understanding of CNS functions. Discussion includes normal function and selected areas of pathology and current research. A one-hour student presentation is required. SP (2-0-2) Zimmerman.

PHY 514 Functional Neurophysiology. An examination of physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems, and higher functions of the nervous system. Relevant neuroanatomical concepts will be included. SP (4-2-4) Staff.

PHY 523 Circuit Theory and Practical Design. A tutorial laboratory course designed to acquaint the student with the principles of design and construction of various electronic equipment commonly encountered in modern physiology. (3-2-4) Guiffre.

PHY 524 Linear Differential Equations and Transform Methods. Study of first and higher order linear equation, linear algebra techniques, finite difference equations, Fourier series and transforms, Laplace transforms, and applications to solution of differential equations. (4-0-4) Eisenberg.

PHY 525 Linear Systems Analysis. Topics include block diagrams, feedback, frequency domain analysis, noise and its analysis, and partial differential equations and their solution. Prerequisite: PHY524. (4-0-4) Eisenberg.

PHY 531, 532 Physiological Modeling I, II. This course covers control theory, the human motor system, and feedback interactions in the human motor system. SU FA (4-0-4) (4-0-4) Gottlieb.

PHY 555 Physiology of Cellular Homeostasis. Integrated physiological content related to cellular homeostasis/viability in humans. Focus is on those selected aspects of cardiovascular, nervous, muscle, hormonal and reproduction, and gastrointestinal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. FA (3-0-3)

PHY 556 Physiology of Cellular Homeostasis II. Integrated physiological content related to cellular homeostasis/viability in humans is presented. Focus is on those selected aspects of pulmonary, cardiovascular and renal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. WI (3-0-3)

PHY 590 Special Topics in Physiology. An advanced course dealing with selected topics in physiology. The particular subjects vary from year to year. (v)

PHY 598 Introduction to Research. A tutorial course designed to familiarize students with the literature and techniques applicable to modern physiological research. FA WI SP SU (v-v-v)

PHY 640 Applied Electrophysiology. An advanced laboratory course introducing students to the basic techniques of modern electrophysiology. Prerequisites: PHY 502, 503, 523. (3-6-6) Staff.

PHY 641 Molecular Mechanisms in Control of Ion Permeability. An advanced course dealing with special topics in the molecular control of excitability and laboratory instruction in voltage clamp techniques. Offered Alt. years by arrangement. Prerequisite: PHY 502. (4-0-4) Cohen, Quandt.

PHY 651 Advanced Topics in Muscle Physiology. Topics include equivalent circuit of skeletal muscle, problems in excitation-contraction coupling, and molecular events in the generation of mechanical force. Prerequisite: PHY 503. (3-0-3) Rios, Eisenberg.

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PHY 653 Problems in Synaptic Physiology. A detailed review of current experimental and theoretical problems in transmitter release and activation of postsynaptic receptors. Prerequisites: PHY 451, 503, 514. (4-0-4) Niles.

PHY 655 Sensory Neurophysiology. An advanced tutorial dealing with the function of sensory systems and information processing. Prerequisite: PHY 514. (4-0-4) Hoepfner.

PHY 690 Research Topics in Physiology. With a member of the staff, the student participates in a laboratory-based experience in an area of current research. The level of participation depends on the student's background and will include examination of the literature, a review of the topics being investigated, and opportunities to participate in experimental work. In addition to work in the laboratories, independent experimental or bibliographic projects may be undertaken with the approval of a faculty member. A report is prepared describing the work attempted and accomplished. Prerequisite: PHY 452. SP SU [8 weeks] Staff.

PHY 699 Thesis Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v)

PHYSICAL MEDICINE AND REHABILITATION

PMR 601 Physical Medicine and Rehabilitation (PM&R). This clerkship will introduce the student to the field of physical medicine and rehabilitation. It includes an introduction to the physical examination of patients with disabilities due to strokes, spinal cord injuries, head trauma, amputations, movement disorders, and arthroplasties, etc. In addition, the student will be expected to observe, understand, and learn what services are provided by the allied health professional staff, and when it is appropriate to prescribe these services. The experience may be obtained at either or both The Center for Rehabilitation at Rush or the Marianjoy Rehabilitation Center. Prerequisite: None (MED 601, PED 601, NEU 601 preferred) [2 - 4 weeks] Nicholas.

PATHOPHYSIOLOGY

PPH 522 Biology of Cancer. Basic concepts of cell biology and biochemistry are introduced with application to the tumor cell. Topics include: mechanisms of carcinogenesis and metastasis, basic and tumor immunology, nutritional aspects of cancer, and hematology. Scientific principles for immunomodulation, radiobiology, and the effect of chemical agents on cell proliferation is included. (4-0-4)

PPH 523 Biological Basis of Clinical Therapeutics I. Emphasis is on the pathophysiological basis and meaning of disease processes. The meaning of assessments and therapies related to body regulation of internal cellular environment is studied. Topics include: cells, immune system, muscle, endocrine control of metabolism, reproduction, and the gastrointestinal system. (2-0-2)

PPH 524 Biological Basis of Clinical Therapeutics II. Emphasis is on the pathophysiological basis of disease

processes. The meaning of assessments and therapies related to body regulation of internal cellular environment is studied. Topics include: pulmonary, cardiovascular, and renal systems, and fluids and electrolytes. (2-0-2)

PPH 525 Biological Aspects of Perinatology: Neonate. Biologic aspects of normal and abnormal changes during pregnancy, labor and delivery are studied. The major focus of study is on the transition to extrauterine life. Neonatal pathophysiology is included. Prerequisite: PPH 555, 556. (4-0-4)

PERFUSION TECHNOLOGY

PRF 301 Introduction to Perfusion Technology. An introduction for the student to the operating room environment. Primary focus will be on sterile technique from scrubbing and gowning and gloving to the aseptic handling of fluids and sterile equipment. Also a general orientation to other departments and locations that interact with the field of perfusion technology, such as the cardiac catheterization lab, intensive care units, pharmacy and other laboratories. Lectures and group discussions will also cover personnel interaction, ethical and professional behavior, as well as sterile supplies and inventories. FA (2-0-2) Djuric.

PRF 302 Pathophysiology of Cardiopulmonary Bypass I. The focus will be on how cardiopulmonary bypass directly affects various organ systems. This first in a series will cover the heart and lungs, congenital defects and acquired disease. Attention will be given to understanding cardiac dynamics in normal and disease states as well as interpretation of ECG's. SP (4-0-4) Djuric, Piccione.

PRF 303 Pathophysiology of Cardiopulmonary Bypass II. This second course will focus on other organ systems, such as renal, vascular, central nervous, and examine how they are affected by cardiopulmonary bypass. Lectures will also cover physiological principles of gas exchange in artificial lungs. SU (4-0-4) Djuric, Staff.

PRF 305 Extracorporeal Circuits. This course will focus on the creation and function of extracorporeal circuits for specific clinical situations. Students will design and build circuits, utilizing appropriate components, based on lectures and readings. The students will try out their designs in the clinical laboratory/classroom. SP (4-0-4) Rizzo.

PRF 311 Junior Seminar I. This course will provide an introduction for the perfusion technology student to the broad spectrum of equipment available for cardiopulmonary bypass. From heart-lung machines and disposable equipment, manufacturer representatives will present their product lines, along with discussion of design and comparative performance evaluations. In addition, students will review historical literature of the development of equipment for cardiopulmonary bypass and discuss them in context of contemporary products. WI (3-0-3) Rizzo, Djuric.

PRF 312 Junior Seminar II, The primary focus of this seminar will be myocardial protection. Students will review

selected readings on various techniques of myocardial protection. Topics will range from coronary perfusion to contemporary concepts in cardioplegia. In addition, the pharmacology of cardioplegia will be presented, along with a review of cardioplegia delivery systems. SP (3-0-3) Djuric.

PRF 313 Junior Seminar III. This seminar will be devoted to class reviews of the clinical cases of the past week. Students will present their cases and discuss charting, case management, blood gas/electrolyte analysis, patient charges, etc. SU (3-0-3) Rizzo, Djuric.

PRF 320 Bioinstrumentation. Through readings, lectures and laboratory demonstrations, the students will learn the safe and proper use of monitoring and other electrical equipment related to perfusion technology. WI (3) Djuric.

PRF 331 Anatomy. A systems approach will be used as the organizational framework for this introductory course. Each unit represents content that is fundamental to understanding the structure and function of the human system being studied. FA (4-0-4) Rizzo

PRF 381 Perfusion Technology Research. Research studies are analyzed and evaluated relative to an identified clinical problem. Includes concepts, methods and strategies inherent to the research process with a focus on design, internal and external validity, sampling, measurement and ethical issues. (2-0-2) Rizzo.

PRF 401 Perfusion Technology I. This course will be an in-depth review of the anatomy and physiology of cardiopulmonary bypass. Emphasis will be on hematologic disorders and renal, neurologic, respiratory and cardiovascular complications. Cardiac pharmacology will be presented. FA (3-0-3) Djuric, Donnelly

PRF 402 Perfusion Technology II. This course will focus exclusively on perfusion of the pediatric patient. After reviewing the anatomy of congenital defects and their correction, discussion will focus on equipment selection (oxygenators, filters, cannulae, tubing, etc.). ECMO as respiratory and/or cardiac support will be presented. WI (3-0-3) Djuric.

PRF 403 Perfusion Technology III. The primary focus of this course will be a review of various aspects of cardiopulmonary bypass in the context of safety for the patient. Subjects will range from staff perfusionist responsibilities (charting, QA/QC, circuit set up, equipment selection, etc.) to case management (acid-base balance, hypothermia, cardioplegia delivery, surgical complications, etc.) and problems associated with related equipment. SP (3-0-3) Djuric.

PRF 411 Senior Seminar I. This seminar will focus on cardiovascular pharmacology. Students will research and present their findings on assigned drugs to the class. Discussion will focus on perfusion related effects. FA (3-0-3) Rizzo.

PRF 412 Senior Seminar II. This seminar will focus exclusively on anti-coagulation and coagulation disorders. Topics will range from current methods of monitoring

anticoagulation (ACT, HPT, TEG) and their relative benefits to coagulation disorders, their diagnosis and treatment. WI (3-0-3) Djuric.

PRF 413 Senior Seminar III. This final seminar will focus on the structure of perfusion departments, private perfusion services, liability, ethics and other concerns for the graduating student. SP (3-0-3) Djuric.

PRF 431 Clinical Experience I. This summer session course will serve as the student's introduction to his/her clinical role as a perfusionist focusing on the role of first assistant. Duties include equipment selection, assisting during set-up and clean-up, charting and general interaction with other personnel during open heart surgery and related procedures. (8) Staff.

PRF 432, 433, 434 Clinical Experience II, III, IV. Under direct supervision by a Certified Clinical Perfusionist the student will gradually move up from a first assistant to a primary perfusionist with sole responsibility for 50 adult procedures and 10 pediatric procedures. The students will be constantly evaluated by their clinical supervisors. These written evaluations will be discussed with the program director on a weekly individual basis in order to insure steady competent progress. (8) (8) (8) Staff.

PSYCHOLOGY

PSC 651 Clinical Sleep Disorders. Diagnosis and treatment of sleep and arousal disorders as recognized by the Association of Sleep Disorders Centers. Major diagnostic categories are reviewed in terms of clinical presentation, etiology, laboratory findings, and potential therapies. Lecture and laboratory. Prerequisite: Sleep minicourse or approval of course director. [2-4 weeks] Cartwright.

PSYCHIATRY

PSY 501 Introduction to Psychopathology. A study of the range of psychopathology that will be manifested in clinical situations. By reviewing diagnostic criteria and by studying etiological factors underlying various forms of psychopathology that range from disturbances in cellular and neurotransmitter function through psychological and social stresses, students develop a basic understanding of common psychiatric conditions. Prerequisite: Behavioral Science 453. FA (3) [33 hours] Schift.

PSY 601 Core Clerkship in Psychiatry. Basic clinical and didactic exposure to the major psychiatric disorders focusing on their diagnosis and management. Emphasis is placed on aspects of psychiatry relevant to the primary practitioner with a holistic approach to patient care recognizing the significant biological, psychological, and social/environmental factors contributing to the patient's illness. Systems concepts of care are presented in an integrated manner through graded, intensive, clinical experiences. Inpatient, settings are used for assignment of patient responsibility. Prerequisite: CCS 502. FA WI SP SU [6 weeks] Schift.

PSY 602 Psychosomatic Medicine. The relationship between internal and external stress and the development

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of physical symptomology as well as therapeutic interventions are studied. Adults hospitalized on medical, surgical, obstetric, or pediatric services are studied with supervised diagnostic evaluation and continuing management. The role of the milieu--home, community, and hospital--is emphasized. Special work is done with dialysis patients, transplant patients, patients with malignancies, and those undergoing intensive care. The elective is planned as an experience in all areas, with emphasis depending upon student interest and need.

Drawing patients from a 912 bed tertiary hospital and the 176 bed John R. Bowman Center for the Elderly, this elective exposes the student to a wide variety of psychosomatic areas of medicine. It offers an opportunity to learn about depression in the medically ill, use of psychotropic medication in the medically ill, use of sodium amytal interview, somatization disorder, chronic and psychogenic pain management, organic brain disease, and liaison psychiatry. Additionally, the consultation-liaison service is very active in research. The student works independently under the supervision of a resident with extensive teaching from supervising attending physicians. This elective also offers opportunity for contact with outpatient psychosomatic and psychosexual disorders. Students are invited to participate in the weekly psychosomatic literature seminar. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] S. Cavanaugh, Chor.

PSY 603 Child Psychiatry. Students will work with the treatment teams of the child psychiatric inpatient unit, the day school and outpatient services. Students will be assigned specific children to follow under the supervision of the attending child psychiatrist and will participate in treatment groups and team management. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] Pozanski.

PSY 604 Adult Psychiatry. The objective is to increase the student's knowledge of various psychiatric disorders and to improve knowledge and skills in drug therapy, individual psychotherapy, family therapy and group therapy. Emphasis is placed on crisis management and brief therapy in inpatient settings. Prerequisite: PSY 601. FA WI SP SU [4-8 weeks] Bagri.

PSY 605 Geriatric Psychiatry. Objectives of this rotation are: to increase the amount of experience in treating elderly patients with psychiatric diagnostic skills and the use of psychotherapy and pharmacotherapy with elderly patients; to learn the psychological changes that accompany the aging process; to become familiar with normal and abnormal states and processes in the elderly. These objectives are accomplished via: 1) readings in the field of geriatric psychiatry, and 2) direct treatment of selected patients with supervision by attending psychiatrists, fellows, and residents on rotation. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Ripeckyj.

PSY 611 Dissociative Disorders. This clerkship will take place on the Dissociative Disorders Unit at Rush North Shore Medical Center. The clerkship will be tailored to the specific needs and interests of the individual students and may focus in either clinical or research areas. The students will follow one to two patients for the period of the rotation and be expected to attend staffings and educational meetings on the unit. Students will be

evaluated on the basis of attendance, attitude, and general knowledge of dissociative disorders gained during the rotation. A self-evaluation on the general knowledge component will be supplied at the beginning of the rotation to assist in providing some focus for the study of this area of psychiatry. Interview with course director required before acceptance into the clerkship. Prerequisite: PSY 601 FA WI SP SU [4-6 weeks] Braun, Sachs.

PSY 621 Behavioral Neurology. The student will be able to perform a behavioral neurologic examination in order to diagnose and treat patients with disorders of verbal output: aphasia, agnosia, apraxia, acalculia and agraphia; delirium and dementia; psychiatric manifestations of epilepsy; neuropsychiatric movement disorders; frontal lobe syndrome; amnesic syndromes and limbic system disorders; and cognitive dysfunction in the major psychoses. Selected readings will be assigned. Prerequisite: NEU 451. FA WI SP SU [4 weeks] Schrift.

PSY 651 Substance Use Disorders. Objectives of this rotation are: to learn to recognize, appropriately evaluate and treat patients with substance use disorders, including alcoholism, cocaine and other drug dependencies in inpatient and outpatient settings; to become familiar with detoxification procedures and medical and neuropsychiatric complications of substance use disorders; to learn the role of the physician in working with other substance use disorder professionals; to read pertinent literature; to gain further knowledge about the management of patients with substance use disorders through frequent supervision. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Epstein.

PSY 683 Clinical Research in Psychiatry. The student is exposed to basic clinical psychiatric research and will be involved with patients with a wide spectrum of psychiatric disorders. Most of the research is based on using medical treatment that is investigational. The objective of this clerkship is to become familiar with basic clinical research including use of psychiatric rating scales and basic research design. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Zajacka.

PATHOLOGY

PTH 501 Pathology I. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Lectures and seminar groups are accompanied by laboratory work in the microscopic anatomy of pathological changes. Prerequisites: ANA 451, 472. FA [127 hours] Templeton.

PTH 502 Pathology II. A basic systemized study of human diseases affecting the various organ systems will be presented in lectures, seminars, and laboratory sessions. Concepts covered in PTH 501 will be stressed and correlated with the special pathology of organ systems and their functional and structural alterations. Prerequisite: PTH 501. WI SP [69 hours] Haber.

PTH 503 Pathology III. The basic fundamentals of laboratory testing will be presented with emphasis placed on interpretation of tests and the appropriateness of test

ordering. Students learn to draw blood and will be expected to perform and interpret a few simple, but diagnostically important, laboratory tests such as urinalysis, hemacrit, and blood smear. No examinations are given in this course, but attendance is required. PTH 502. SP [3259 hours] Haber.

PTH 601 Pathology Clerkship. The primary emphasis is on techniques and procedures used in autopsy pathology performed under the direction of a departmental faculty member. In addition, there is active participation in surgical pathology and departmental conferences. A review of systemic pathology and cytology is provided. Available as a four-week elective only by special arrangement. Prerequisite: MED 601. FA WI SP SU [8 weeks] Dainauskas.

PREVENTIVE MEDICINE

PVM 511, 512, 513 Preventive Medicine I, II, III. A series of courses for first and second year medical students covering epidemiology, biostatistics, public health and community based primary care programs, social issues, occupational health, and other issues in preventive medicine. [28 hours][16 hours][8 hours]

PVM 541 Biostatistics I. A basic introduction to the use of statistics in the health sciences. Topics covered include: descriptive statistics, probability, sampling, estimation, t- and Z-tests, chi-square tests, one-way analysis of variance, and nonparametric statistics. Students will do some statistical computations on the computer. FA (4-0-4) Leurgans, P. Meyer.

PVM 542 Biostatistics II. An extensive introduction to regression, two-way analysis of variance, and analysis of covariance. Regression topics covered include: dummy variable, transformations, stepwise regression, and residual analysis. Most of the analysis will be done using computer programs. Prerequisite: PVM 541. WI (3-0-3) Leurgans.

PVM 543 Biostatistics III. An introduction to multivariate statistical techniques, including factor analysis, discriminant analysis, multivariate analysis of variance, loglinear analysis, and cluster analysis. Extensive use will be made of computer programs. Prerequisite: PVM 542. SP (3-0-3) P. Meyer.

PVM 599 Independent Study. Advanced topics by arrangement with instructor. (v)

PVM 601 Primary Care. Ambulatory care in a physician's office is the basis for this clerkship. Emphasis is on preventive measures and follow-up care. By individual arrangement, experience is available in a variety of settings, such as group practice, inner city clinics, or rural practice. Experience in foreign countries can also be arranged. Prerequisite: CCS 502 FA WI SP SU [4-12 weeks] Schoenberger.

PVM 603 Occupational Medicine. This experience provides a combination of didactic and practical work in approaching the problems of health maintenance and environmental hazards in diverse industrial settings. Prerequisite: MED 601. FA WI SP SU [8 weeks] Kassriel.

PVM 604 Field Experience in Epidemiology. Emphasis is placed on the collection and analysis of data obtained in epidemiologic studies. The student may select a project and is expected to become familiar with field epidemiologic techniques and tools, including questionnaire design and interviewing. Primary focus is on studies of cardiovascular disease, with special emphasis on the control of hypertension and prevention of cardiac disease. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Schoenberger.

PVM 605 Research Studies in Health Care Delivery. Under supervision, the student undertakes research on problems in health care delivery. The models available in the Medical Center are utilized primarily, but other systems may be studied by arrangement. Such areas as health evaluation programs, the use of paramedical personnel, medical audit and emergency room care are available. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Schoenberger.

RADIOLOGY

RAD 601 Diagnostic Radiology. Basic radiologic principles are demonstrated and the role of diagnostic radiology as a clinical setting for patient care and medical and surgical specialty consultations is emphasized. Students prepare one case for the teaching file and gives one oral presentation. Students have assigned readings to complete, teaching tapes to review, and are tested by a written final examination. There is a special lecture series designed specifically for the students, with lectures and unknown cases, presented by the diagnostic radiology attending staff and residents. Students are also urged to attend the two daily departmental teaching conferences. A minimum of four students any four week rotation. Approval of course director required to drop course within eight weeks of start of rotation. FA WI SP SU not in June, July, November, December or January [4 weeks] C. Smith.

RAD 606 Nuclear Medicine. All facets of the disciplines of nuclear medicine are studied, with particular emphasis on radionuclide scanning of organ systems for diagnostic and research purposes. Emphasis is on pathophysiologic correlation and case study. Literature review and individual topics are encouraged to provide in-depth study in the broad field of nuclear medicine. FA WI SP SU [2-4 weeks] Fordham.

RAD 611 Interventional Radiology. This clinical clerkship exposes the student to interventional radiology with emphasis on patient care. Both non-vascular as well as vascular interventional examinations are performed on both inpatients and outpatients. Students will have assigned readings and will be able to attend lectures given by the diagnostic radiology attending staff and residents included in RAD 601. Available to Rush Medical College students only. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Matalon.

RAD 612 Correlative Imaging. This clerkship exposes the student to ultrasound, computed tomography and magnetic resonance imaging with emphasis on correlation of radiologic findings. Students will be assigned reading and spend time in each of the various imaging sections in

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the radiology department working with attending physicians and residents. Available to Rush Medical College students only. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Silver.

RAD 621 Radiation Oncology. The student will participate in the normal activities of the department including consultations, treatment planning, and follow-up care of cancer patients. Students are assigned to two different services allowing exposure to different cancer sites. FA WI SP SU [2-4 weeks] Phillips.

SPEECH AND HEARING SCIENCES

SHS 501, 502 Speech and Hearing Sciences I, II. Normal processes in language, speech and hearing. Concepts in basic acoustic forms and acoustic phonetics are presented. Theories of hearing, language and speech are considered along with an introduction to psychoacoustics. (3-0-3)

SHS 503 Hearing Science. This course considers the normal processes in hearing as well as theories of hearing. Basic physical concepts and perceptual aspects of sound are presented. This course may be offered during academic years when SHS 501, 502 are not available. (3-0-3)

SHS 504 Speech Science. Normal processes in language and speech are presented as well as concepts in acoustic phonetics. Topics include speech aerodynamics, theories of speech and language production, and speech perception. This course may be offered during academic years when SHS 501, 502 are not available. (3-0-3)

SHS 505 Audiology I. Students develop skills in basic audiological methods for adults and children, including puretone testing, speech audiometry, masking, and immittance testing. Overview of medical considerations, tuning fork tests, special tests, hearing conservation, and hearing aids. (2-0-2)

SHS 506 Audiology II. A survey of audiologic tests developed to provide differential diagnosis of auditory pathology. Course content will be applied to students' practicum experience. (3-0-3)

SHS 507 Neurological Bases of Speech, Hearing, and Language. Central and peripheral nervous system structures which form the neurologic bases for speech, hearing and language are presented. (3-0-3)

SHS 511, 512, 513, 514, 515 Speech-Language Pathology Practicum I, II, III, IV, V. Supervised clinical experience with patients presenting speech, language, voice, fluency, or swallowing impairments. Students develop evaluative, therapeutic, counseling, and report-writing skills. The relationship of speech-language pathology to other health care professions is examined. (v-v-v)

SHS 516, 517, 518, 519, 520 Audiology Practicum I, II, III, IV, V. Supervised clinical experience with patients displaying various hearing impairments. Students develop

skills in diagnostic evaluation, obtaining case histories, counseling, and treatment techniques for pediatric through geriatric patients. The relationship of audiology to other health care professions is examined. (v-v-v)

SHS 522 Language Disorders in Children. An examination of normal and abnormal language development. Consideration is given to theories of language learning; prerequisites to symbolic communication, normal acquisitions, language analysis procedures and etiological variables. Methods of language assessment, treatment models, and therapeutic procedures are studied. (3-0-3)

SHS 523 Sign Language. This introduction is designed to develop sign language skills to a beginning level for both expressive and receptive vocabulary. (2-0-2)

SHS 524 Fluency, Dysfluency, and Stuttering. Child and adult fluency disorders will be studied. Students will learn to describe pertinent characteristics of speech fluency, identify the presence of a clinically significant fluency problem, and determine etiologic and maintaining factors. Appropriate management strategies also will be considered. (3-0-3)

SHS 526 Industrial Audiology. An examination of hearing conservation programs in industry and the current regulations governing them. (2-0-2)

SHS 531 Amplification for the Hearing Impaired. A working knowledge of hearing aids is provided in this course. A brief historical perspective on amplification is accompanied by an evaluation of the modern hearing aid. This includes a discussion of the variety of aids available, earmold acoustics, design and modifications, selection techniques, measurement, probe microphone, and fitting procedures. Electroacoustic analysis and troubleshooting will be covered along with Illinois regulations for dispensing hearing aids. Hearing aid evaluations and cochlear implants will be included. Laboratory participation will include earmold impressions, electroacoustic analysis, earmold modifications, troubleshooting hearing aids and probe microphone measurements. (3-v-3)

SHS 532 Advanced Hearing Aids. An examination of hearing aid dispensing by the audiologist. State and federal regulations, in-the-ear hearing aid modification, marketing techniques, and advanced hearing aid measurements are some of the topics covered. (2-1-3)

SHS 533 Adult Rehabilitative Audiology. An examination of adult aural rehabilitation. Visual, auditory, and bi-sensory stimuli in communication are considered along with assessing communicative function, auditory training, speechreading, amplification, assistive listening devices, cochlear implants and the psychosocial aspects of hearing impairment. The geriatric population and the working-age adult will be considered as separate rehabilitative challenges. (3-0-3)

SHS 534 Pediatric Rehabilitative Audiology. An examination of the strategies involved in the management of hearing impaired and deaf children. Topics discussed include parent counseling, auditory training, speech and

language training and educational opportunities. Various educational models will be covered. The audiologist's role in case management will be discussed. (3-v-3)

SHS 542 Electronystagmography. Anatomy and physiology of the vestibular and ocular motor systems will be reviewed. Disorders of patients presenting vertiginous symptoms will be discussed with emphasis on technique and interpretation of ENG findings. Acceleration measurements will be introduced. (3-0-3)

SHS 543 Electrophysiologic Assessment of the Auditory System. Reviews the principles and practices of electrophysiologic testing with emphasis on the auditory brain-stem response. (4-v-4)

SHS 544 Pediatric Audiology. This course looks at the normal development of auditory behaviors and examines the impact of hearing loss on speech/language development. Procedures for testing hearing in children are presented, including consideration of screening procedures and issues. Hearing aid selection and fitting for pediatric patients is also included. (3-0-3)

SHS 545 Anatomy and Physiology of Speech and Hearing. This course includes neurologic, anatomic, and musculoskeletal bases of both speech and hearing. (3-0-3)

SHS 546 Anatomy and Physiology of Speech and Hearing Lab. The lab section examines the structures important for speech and hearing through various activities which may include cadavers, models, specimens, and slides. (0-1-1)

SHS 548 Advanced Electrophysiologic Assessment. A detailed examination of specialized clinical evoked potentials, including electrocochleography the frequency following response, middle latency response, P300, and visual and somatosensory responses. Special applications of standard AEP procedures will be covered. Otoacoustic emissions are also included. (2-1-3)

SHS 550 Electronystagmography Laboratory. A review of basic technique and practical considerations for performing ENG. (0-1-1)

SHS 551 Diagnostic Methods in Speech-Language Pathology. This course will focus on concepts in educational and psychological testing and measurement. General aspects of the diagnostic evaluation will also be presented. (3-0-3)

SHS 553 Instrumentation for Hearing and Speech. An introduction to instrumentation used in the measurement and treatment of speech and hearing processes. Concepts related to the evaluation of instruments are presented. Personal computers and their applications are reviewed. Clinical and research applications are emphasized. (2-1-3)

SHS 556 Dysphagia I. A review of the anatomy and physiology of normal deglutition. Disorders of deglutition, will be studied. Bedside and radiographic diagnosis will be covered. Prerequisite: SHS 545. (1-0-1)

SHS 557 Dysphagia II. Management decisions and therapy techniques for patients with disordered oral feeding will be emphasized. Medical and surgical treatments will be covered. Prerequisite: SHS 556. (1-0-1)

SHS 558 Dysphagia III. Knowledge from Dysphagia I and II will be integrated in this course. Current research will be reviewed. An overview of various study techniques and instrumentation used in assessing swallowing disorders will be included. Case studies and ethics are discussed. Prerequisite: SHS 557. (1-0-1)

SHS 561 Articulation Disorders. The focus of this course is on normal and abnormal aspects of speech. Consideration is given to phonetic transcriptions, theories of and prerequisites to speech development, phonological analysis procedures and normal acquisition. Etiological factors related to abnormal articulation are examined. Articulation assessment strategies, treatment models, cross-cultural issues and remediation procedures are studied. (4-0-4)

SHS 562 Craniofacial Anomalies. An overview of the natural history of cleft palate and other craniofacial anomalies characterized by specific speech problems. The emphasis will be on the development of the multidisciplinary team, speech disorders secondary to these craniofacial anomalies, history of previous care and treatment of persons with these disorders, update on recent research, new treatment developments, and approaches to diagnostic and therapeutic speech intervention. Observation of diagnostic and therapeutic speech intervention. Observation of diagnostic evaluations and treatment planning by a multidisciplinary craniofacial team is included as part of the curriculum. (3-0-3)

SHS 563 Voice Disorders. The assessment and management of voice disorders. Students will acquire skills in identifying various pathologies, forming hypotheses as to etiologic and maintaining factors and implementing management strategies. The contribution of otolaryngology, neurology, and psychiatry in patient management will also be reviewed. Evaluation and management of patients following laryngeal surgery, including laryngectomy, will be covered. Prerequisites: SHS 507, 545

SHS 564 Aphasia. Adult onset neurogenic language disorders are examined with emphasis on pathophysiology, symptomatology, assessment, diagnosis, treatment, and the role of counseling. Theoretical models and past and current controversies will be included. (4-0-4)

SHS 565 Motor Speech Disorders. The identification and management of speech disorders secondary to central and/or peripheral nervous system damage. Topics will include conducting a motor speech exam; components of the various dysarthrias; and management. Neural bases of speech production will also be reviewed. (3-0-3)

SHS 566 Pathophysiology of the Auditory System. This course will examine various ear diseases and other pathologies as they affect the auditory system. (3-0-3)

SHS 568 Cognitive Disorders. Communication and cognition in normal adults and the influences of aging and acquired neurological impairments on these behaviors. Etiologies and characteristics of adult communication disorders associated with dementia, agnosia, injury to the non-dominant cerebral hemisphere, traumatic brain assessment and management of communication disorders demonstrated by these populations are reviewed. (3-0-3)

SHS 575 Issues in Counseling. The major focus is on understanding the process of the helping relationship. In addition, skills and competencies that interact to influence effectiveness as a communicator will be developed. Knowledge of selected counseling theory as it integrates into practice will be acquired. (3-0-3)

SHS 582 Introduction to Research in Communication Disorders. The development of skills in understanding and critiquing research reports is emphasized. Principles of the scientific method and criteria for evaluating research are studied. Consideration is given to both group and single subject research designs. (4-0-4)

SHS 585 Professional Issues I. This course provides an introduction to professional conduct and reviews student/professional issues such as scope of practice, ethics, supervision, TQM, conflict management. (1-0-1)

SHS 586 Professional Issues II. Issues relating to preparation for the paid professional experience are discussed, including resume writing, interviewing techniques, career planning, licensure certification and accreditation. (1-0-1)

SHS 589 Research Practicum. The development of practical research skill through involvement in a research project. Research methods such as data collection, data analysis, and report writing are emphasized. (1-2-3)

SHS 590 External Practicum in Speech Pathology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions. (v-v-v)

SHS 591 Advanced Clinical Training Advanced training in speech-language pathology or audiology (v-v-v)

SHS 595 External Practicum in Audiology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions (v-v-v)

SHS 597 Case Presentation. Students formally present an interesting clinical case with which they have been involved. Each student works with a supervising faculty member in preparing the presentation. (0-1-1)

SHS 598 Thesis. Under the guidance and direction of a faculty member and committee, the student originates, proposes, and executes an experiment. These projects must reflect a high degree of scholarship. (v-v-v)

SHS 599 Independent Study. Students pursue in depth an area of their choosing under the direction of a faculty member. (v-v-v)

SURGERY

SUR 601 Core Clerkship in Surgery. Principles of preoperative and postoperative care, diagnosis of surgical disease, indications for surgery, and physiological principles of surgery are stressed through the case study method. The clerkship teaches surgical pathophysiology, helps students recognize surgical emergencies and outline their therapy, improves diagnostic ability and encourages use of the library, and increased poise in presenting cases. In addition to six weeks of general surgery, the students choose two three-week rotations from available surgical electives to complete the clerkship. Prerequisite: CSS 502. FA WI SP SU [12 weeks] Doolas.

SUR 604 Advanced Surgery Clerkship. Under supervision, the student assumes many of the duties and responsibilities of a resident physician. This includes responsibility for preoperative and postoperative care, participation in surgery, and rotating on-call service. The work is primarily with hospitalized patients, with opportunity for ambulatory and elective surgery. Independent library investigative projects are assigned. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Doolas.

SUR 605 Anesthesiology. The program enables medical students to learn airway management; recognize circulatory inadequacy and initiate support of the failing circulation; induce topical and infiltrative anesthesia safely; understand the actions and interactions of depressant and stimulant drugs commonly encountered or used by anesthesiologists; and participate in pre-operative evaluation preparations of surgical and obstetric patients. Prerequisite: MED 601, SUR 601. FA WI SP SU [4 weeks] Badrinath.

SUR 606 Clinical Transplantation. The clinical aspects of transplantation, including donor and recipient surgery and preoperative and postoperative care are studied. The student participates in organ preservation as well. Seminars on the fundamental and clinical aspects of transplant immunology are held. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Williams.

SUR 611 Cardiovascular Surgery. This course emphasizes the clinical diagnosis and surgical management of adult and pediatric cardiac disorders. Pre-operative evaluation including review of cardiac catheterization data, intra operative-management and post-operative care are discussed at conferences and in the operating room. Indications for surgery, preoperative evaluation and postoperative care are discussed at patient rounds, in conferences, and on an individualized basis. Prerequisite: SUR 601, 605. FA WI SP SU [4 weeks] Piccione.

SUR 612 Surgical Intensive Therapy. This rotation exposes the experienced student to comprehensive management of critically ill surgical patients. Application of life support techniques including vaso-active drugs, mechanical aids to circulation, pacing, counter-shock, and respiratory therapy are taught. Pathophysiologic discussion and integration with cardiopulmonary analysis of data obtained from invasive monitoring are emphasized. Radiologic, medical, and surgical aspects of critical care medicine are also incorporated. Prerequisite: MED 601,

SUR 601, SUR 605. FA WI SP SU (4 weeks) Rothenberg.

SUR 613 Peripheral Vascular Surgery. This course emphasizes the clinical non-invasive laboratory and radiologic diagnosis of peripheral vascular disorders considered for surgical management. Indications for surgery, pre-operative evaluation and post-operative care are discussed at patient rounds, in conferences and in the operating room. Prerequisite: SUR 601, SUR 605. FA WI SP SU (4 weeks) DeValle.

SUR 616 Plastic and Reconstructive Surgery.

The Department of Plastic Surgery welcomes third and fourth year medical students to participate in this service. The primary goal of the department in the relationship to the students is to provide an introduction to the subspecialty of plastic and reconstructive surgery in as many of its various elements and diverse applications as possible. Plastic surgery covers a broad array of surgical/medical problems including wound healing; burns, both acute and long-term care; congenital anomalies such as cleft lip and palate and other craniofacial defects; breast surgery including breast reduction, augmentation, and reconstruction following mastectomy; microsurgical procedures for a free flap transfer, nerve repair, and other means of tissue transposition; hand surgery, ranging from acute industrial accidents to long-term rehabilitation for neuromuscular problems; care of facial fractures, both acute and delayed repair; care for trunk and extremity problems, relating both to trauma and tumor extirpation; and aesthetic surgery of the face, extremities and trunk, known best in the lay press as cosmetic surgery.

During a student's experience on the plastic surgery service, he/she might well participate in any one of several problems relating to the above named categories. While it is the primary goal of the service to offer the student a broad overview to the specialty, it is also intended that each student be allowed to investigate one or more items of interest in some greater depth. The student's participation includes daily ward rounds, assisting in the operating room, and conferences held by the service. This participation comes in various forms ranging from the practical aspects of learning proper techniques for dressing changes, learning rudimentary suture techniques, on to the more complex issues of patient analysis and surgical judgement and decision-making processes. Each student is given a degree of responsibility appropriate to his/her experience, level of training, and personal initiative. Personal inquiries from students are welcomed not only by the department chairman, but also by the course director and each member of the plastic surgery attending and resident staff. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Schafer.

SUR 626 Principles of Urology. This clerkship provides further experience in the diagnosis and management of urological problems as a supplement to the basic clerkship in surgery. Prerequisite: SUR 601. FA WI SP SU [4 weeks] McKiel.

SUR 627 Genitourinary Neoplasia. This course is designed to present the basic concepts of neoplasia, using the genitourinary neoplasms as models. The student actively participates in the management of both hospitalized

and ambulatory patients. Multidisciplinary seminars and individual projects are available. Course director approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Flanagan.

SUR 641 Orthopedic Sports Medicine. The basic principles of physical examination, non-operative and operative treatment and rehabilitation of sports-related injuries are emphasized. Clinical exposure includes participation in office hours, patient evaluation and hospital care, high school game and sports event coverage with orthopedic house officers and staff attendings, experience in intercollegiate field house training rooms, and the evaluation of the acutely injured athlete. Diagnostic and surgical arthroscopy of the knee and shoulder, knee ligament reconstruction and shoulder reconstructive surgery are emphasized. Reading list is provided. Course director approval required. Prerequisite: SUR 601. FA WI SP SU (4-6 weeks) B. Bach, Jr.

SUR 651 Clinical Orthopedics. The primary emphasis is on examination, diagnosis, pathology, and treatment of conditions affecting the musculoskeletal system. The student participates in clinical work in physicians' offices and hospital facilities such as the cast room and the operating room. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Gitelis.

SUR 652 Orthopedic Research. Research and bioengineering as applied to the musculoskeletal system are studied with particular emphasis on the pathomechanics of human gait, mechanics of lifting, experimental use of implants in animals and their effects on biologic systems. Prerequisite: SUR 601. FA WI SP SU [8 weeks] Andriacchi.

SUR 656 Clinical Neurosurgery. This clinical clerkship expands upon and demonstrates the practical application of neurological sciences. The emphasis is on diagnosis and pathophysiological correlation of diseases of the nervous system. Practical application of neurosurgical management and diagnosis as well as the treatment of neurosurgical emergencies is studied in detail. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Whisler.

SUR 657 Principles of Ophthalmic Examination. The purpose of this course is to acquaint students with the surgical subspecialty of ophthalmology. They will learn basic ophthalmic terminology, history and examination principle, attend daily rounds and other didactic sessions, and observe surgery. It is intended that students will not only learn techniques of examination which will be useful in their own medical practices, but will also understand the capabilities and limits of the ophthalmologist in order to make better use of ophthalmic consultations. FA WI SP SU (2 weeks) T. Deutsch.

SUR 658 Research in Ophthalmology. Students with a special interest in ophthalmic research may take an elective of variable duration, but at least eight weeks. Students will be introduced to techniques of research including problem identification, study design, research methods, data collection, statistical analysis literature review, and manuscript production. It is not necessary for a project to be completed within the short period of the

Course Descriptions

elective, nor is it guaranteed that a given research project will culminate in a publication. FA WI SP SU (8 weeks or more) T. Deutsch

SUR 659 Otolaryngology. Clinical experience is provided in the diagnosis and management of patients with diseases of the ear, nose, throat, head, and neck. Office practice in addition to the care of hospitalized patients provide the basis for clinical instruction, with emphasis on case study and proper use of instruments. Departmental pathology, radiology, and otology conferences and journal club are included. Course director approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Caldarelli.

SUR 661 Surgical Oncology. Concentrated experience in the surgical diagnosis and management of patients with tumors is provided. Correlation of surgical problems with anatomic and pathological physiology is stressed, including examination of gross and microscopic tissue. Attendance at the tumor clinic, tumor conference, and head and neck tumor conference is required. Prerequisite: SUR 601. FA WI SP SU [4-6 weeks] Staren.

SUR 670 Communication Disorders and Sciences. The course includes introduction to speech, language, and hearing problems and provides observation and interaction

with patients demonstrating aphasia, dysarthria, stuttering, cleft palate, and developmental speech abnormalities. Students will obtain experience in interpretation of basic hearing assessment and in using results of more advanced tests to differentiate among types of hearing loss. Course director approval required. FA WI SP SU [2 weeks] Baumgartner.

SUR 671 Thoracic Surgery. The diagnosis, and operative and postoperative care of patients with pulmonary and esophageal disorders are studied in both hospitalized and ambulatory patients. In addition, students assist in patient care, and topics are assigned for discussion. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Faber.

SUR 680 Third World Medicine Surgery Clerkship. Students will be part of an approximately 30 member team doing cleft-lip and palate surgery on children. The varying degrees of social and medical conditions provide the third world background with an exciting opportunity for learning. The team works intensely each day and has operated on as many as 200 children in one week. Approval must be obtained from the dean's office prior to December first. Offered in February only. Fourth year standing. (4 weeks) Bradley.

FACULTY

Departmental Faculty Listing	188
Alphabetical Faculty Listing	215

Faculty by Department

Anatomy

Schmidt, Anthony*
Professor
Chair
Andriacchi, Thomas P.*
Professor
Burcham, James M
Asst. Professor
Dinsmore, Charles E.*
Assoc. Professor
Durica, Thomas E.*
Asst. Professor
Galante, Jorge O.*
Professor
Hovde, Christian A
Asst. Professor
Hughes, W. Franklin*
Assoc. Professor
Jacob, Susan K*
Asst. Professor
Kerns, James M.*
Assoc. Professor
Khodadad, Jena*
Asst. Professor
Kuszk, Jerome R.
Assoc. Professor
Leven, Robert M.
Asst. Professor
Maibenco, Helen
Emeritus
Rawlins, Richard
Asst. Professor
Seale, Raymond*
Professor
Smith, Claire S.
Asst. Professor
Sumner Jr., Dale R.*
Asst. Professor
Williams, James M.*
Asst. Professor
Zimmerman, Roger P.
Assoc. Professor

Anesthesiology

Ivankovich, Anthony
Professor
Chair
Albuquerque, Anil
Assistant
Austin, Russell William
Assistant
Badrinath, Shyamala K.
Asst. Professor
Bajaj, Anil
Assistant

Barkin, Robert
Asst. Professor
Barnes, Steven D.
Asst. Professor
Barnett, Brian A.
Assistant
Bonifer, Thomas M
Assistant
Bossenberry, Stephen
Assistant
Braverman, Berton
Asst. Professor
Brukoff, Christopher D.
Assistant
Callaban, Patrick
Asst. Professor
Carstens, Richard
Assistant
Chang, Randolph Yoon
Assistant
Cole, Patricia A.
Asst. Professor
Collins, Patricia H.
Instructor
Djordjevich, Ljubomir
Asst. Professor
Drease, Grace Evelyn
Assistant
El Ganzouri, Abdel R.
Assoc. Professor
Elbaz, Nabil M. I.
Assoc. Professor
Ford, Erica W.
Asst. Professor
Hahn, Robert
Visit. Asst. Prof.
Heckel, V Eileen
Emeritus
Heller, Floyd N.
Assoc. Professor
Hofstra, Richard M.
Assistant
Hong, Suzette Catherin
Assistant
Keane, Donal M.
Asst. Professor
Keh-Wong, Elisa S
Asst. Professor
Kierney, Catherine M. P.
Asst. Professor
Kim, Jerry Yonguk
Assistant
Krolick, Thomas J.
Instructor
Lai, Joseph C
Asst. Professor
Lai, Tai Min
Instructor

Larson, John M.
Asst. Professor
Lau, Kevin Yui
Assistant
Leipzig, Gregory James
Assistant
Lin, Yuan-Hwai
Instructor
Lipov, Eugene G.
Asst. Professor
Loh, Wai-Tak
Instructor
Lubenow, Timothy R.
Asst. Professor
Lurie, Jordan I.
Instructor
Martin, Nell F.
Instructor
Martin, William C.
Instructor
McCarthy, Robert J.
Assoc. Professor
Meister, Michael D.
Instructor
Miller, Paul E.
Instructor
Morch, E. Trier
Emeritus
Moritz, Howard
Asst. Professor
Murphy, Peter
Assoc. Professor
Newman, L. Michael
Assoc. Professor
O'Connor, Christopher
Asst. Professor
Parnass, Samuel M.
Assoc. Professor
Patel, Rajesh V.
Assistant
Pittman, Scott K.
Instructor
Prasad, Neerukonda
Instructor
Presto, Perfecto P.
Instructor
Reddy, Chandra B.
Asst. Professor
Reddy, Viswantha B.
Instructor
Rose, Raymond F.
Emeritus
Rothenberg, David M.
Assoc. Professor
Sadove, Max S.
Emeritus
Santander, Marc
Asst. Professor

Saxena, Sudershan
Asst. Professor
Sayeed, Yousuf Ghouse
Assistant
Seshadri, Kandiur
Instructor
Silins, Astrida I.
Asst. Professor
Sosis, Mitchel
Asst. Professor
Starck, Timothy W.
Asst. Professor
Stetson, John B.
Emeritus
Trivedi, Vivek Kumar
Assistant
Tsai, Houn
Instructor
Tuman, Kenneth J
Assoc. Professor
Tuman, Mary T.
Instructor
Urban, Thomas Francis
Assistant
Venugopal, Kottarathil
Asst. Professor
Villaflor, Edward
Instructor
Wagner, Ronald Gene
Assistant
Whalen, Jordy Bernard
Assistant
White, Lynn R.
Assistant
Williams, Brian David
Instructor
Williams, Mark Timothy
Assistant
Wong, Alfonso
Asst. Professor
Wright Michael Hill
Assistant
Wu, Dickson S
Instructor
Yastrow, Edward S.
Asst. Professor

Biochemistry

Kuettner, Klaus*
Professor
Chair
Alak, Ala M.
Asst. Professor
Anderson, Kenning M.*
Assoc. Professor
Arsenis, Charalampos
Visiting Professor

* indicates that the faculty member has an appointment in The Graduate College

Aydelotte, Margaret *
 Assoc. Professor
 Bagdade, John*
 Asst. Professor
 Basheeruddin, Khaja
 Asst. Professor
 Berry-Kravis, Eliabeth
 Asst. Professor
 Bezkorovainy, Anatoly*
 Professor
 Block, Joel A.
 Asst. Professor
 Boehm, Beate B.
 Instructor
 Brocks, Dietrich
 Visit. Assoc. Prof.
 Casey, Larry C.
 Asst. Professor
 Cohen, Maynard
 Professor
 Cole, Ada A.
 Asst. Professor
 Cole, Edmond*
 Professor
 Cs-Szabo, Gabriella
 Asst. Professor
 Dimuzio, Michael
 Visit. Asst. Prof.
 Erhardt, Peter
 Instructor
 Fassbender, Hans
 Visit. Professor
 Fleckenmacher, Johannes
 Instructor
 Glant, Tibor T. *
 Assoc. Professor
 Harris, Michael
 Asst. Professor
 Harrison, William H.*
 Professor
 Hascall, Vincent C.
 Visiting Professor
 Hauselmann, Hans Jorg
 Visit. Asst. Professor
 Hayashi, James A.*
 Professor
 Homandberg, Gene
 Assoc. Professor
 Hoskin, Francis C. G.
 Professor
 Huff, John P.
 Asst. Professor
 Iyer, Anand P.
 Asst. Professor
 Kimura, James H.
 Visiting Professor
 Knudson, Cheryl*
 Asst. Professor
 Knudson, Warren*
 Asst. Professor
 Kornel, Ludwig *
 Professor
 Lange, Yvonne *
 Professor
 Lenz, Mary Ellen
 Instructor
 Lobstein, Otto E.
 Assoc. Professor

Maturen, Andrew J.
 Assoc. Professor
 Mattenheimer, Hermann*
 Professor
 Mikecz, Katalin
 Asst. Professor
 Mok, Su San
 Instructor
 Mollenhauer, Juergen *
 Assoc. Professor
 Morley, Colin *
 Visit. Assoc. Prof.
 Orth, Michael J.
 Instructor
 Rafelson Jr, Max E.*
 Emeritus
 Raiss, Ruth Xenia
 Visit. Asst. Prof.
 Rubenstein, Marvin
 Asst. Professor
 Sandell, Linda
 Visit. Assoc. Prof.
 Schmid, Thomas M.*
 Assoc. Professor
 Schumacher, Barbara
 Instructor
 Schwartz, David Nathan
 Visit. Asst. Prof.
 Shevtchenko, Valeri
 Instructor
 Shiota, Hiroshi
 Instructor
 Sky Peck, Howard H.*
 Emeritus
 Snopko, Rose Marie
 Instructor
 Subbaiah, Papasani V. *
 Assoc. Professor
 Thonar, Eugene *
 Professor
 Uebelhart, Daniel
 Visit. Asst. Prof.
 Waickus, Cynthia Marie
 Asst. Professor
 Walcz, Erzsebet
 Instructor
 Webster, Robert A.
 Asst. Professor
 Whisler, Kenneth E.*
 Asst. Professor
 Whisler, Walter
 Professor
 Wilbrink, Bert
 Instructor
 Williams, James M.
 Assoc. Professor
 Zaneveld, Lourens*
 Professor

Cardiovascular Thoracic Surgery

Najafi, Hassan
 Professor
 Chair
 Adams, Robert Douglas
 Instructor

Allen, Keith B.
 Instructor
 Alshabkhoun, Shakeab
 Asst. Professor
 Andersen, James H.
 Associate
 Ball, Stephen Kent
 Asst. Professor
 Choudhry, Anwar S.
 Asst. Professor
 Davalle, Michael J.
 Asst. Professor
 Davis, Zev
 Instructor
 De Laria, Giacomo A.
 Assoc. Professor
 Dye Jr, William S.
 Emeritus
 Faber, L. Penfield
 Professor
 Garibaldi, Abel
 Instructor
 Goldin, Marshall D.
 Assoc. Professor
 Guillory, Joel
 Instructor
 Guynn, Todd P.
 Instructor
 Heim, John A.
 Instructor
 Hoeksema, Tammo
 Instructor
 Hunter, James A.
 Professor
 Ilbawi, Michael N.
 Lecturer
 Javid, Hushang
 Emeritus
 Jensik, Robert J.
 Professor
 King, Jerry N.
 Asst. Professor
 Kittle, C Frederick
 Professor
 Kucich, Vincent
 Instructor
 March, Robert J.
 Asst. Professor
 Milloy, Frank J.
 Assoc. Professor
 Monson, David O.
 Assoc. Professor
 Oldfield, R Charles
 Asst. Professor
 Overman, David Miller
 Instructor
 Pappas, Patroklos
 Instructor
 Patel, Khushroo E.
 Asst. Professor
 Piccione, William
 Asst. Professor
 Raghunath, Teralander
 Asst. Professor
 Roberts, Jack C.
 Asst. Professor
 Serry, Cyrus
 Assoc. Professor

Somers, Jonathan
 Assistant
 Warren, William H.
 Assoc. Professor
 Weinberg Jr, Milton
 Emeritus

Clinical Nutrition

Dowling, Rebecca A.
 Assoc. Professor
 Chair
 Arendt, Susan A.
 Instructor
 Barry, Diana
 Instructor
 Betz, Eleanor
 Instructor
 Bezkorovainy, Anatoly
 Assoc. Professor
 Bosler, Renee M.
 Instructor
 Boublis, Cheri Paulette
 Instructor
 Burns, Julie
 Associate
 Clarke, Roberta Helen
 Instructor
 Collins, Sandra Rose
 Instructor
 Cooney, Colleen Marie
 Instructor
 Cotner, Carol Lou
 Asst. Professor
 Deselich, Janet S.
 Instructor
 Domas, Andrea Jean
 Instructor
 Gumbel, Mary K.
 Instructor
 Kanter, Mitchell M.
 Visit. Assoc. Prof.
 Lafferty, Linda
 Assoc. Professor
 Lipson, Sally
 Instructor
 Llanes, Antonietta G.
 Instructor
 Lockhart, Cynthia Lynn
 Instructor
 Murtaugh, Maureen
 Asst. Professor
 Peloquin, Theodore J.
 Instructor
 Pool, Ellis
 Instructor
 Potter, Eileen M.
 Instructor
 Rezabek, Karen
 Instructor
 Robinson, Margaret V.
 Instructor
 Ryan, Tracy A.
 Instructor
 Saran, Marilyn F.
 Instructor
 Shepherd, Sandra K.

Faculty by Department

Shepherd, Sandra K.
Asst. Professor
Shield, Jo Ellen
Associate
Skipper, Annalynn
Instructor
Slowie, Linda A.
Instructor
Sowa, Diane
Instructor
Storm, Heidi Marie
Instructor
Szeluga, Debra J.
Asst. Professor
Tangney, Christine
Assoc. Professor
Vance, Alicia Mae
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Communication Disorders and Sciences

Meyer, Dianne H.
Asst. Professor
Chair
Alber-Jahocki, Denise M.
Associate
Bacon, Mary
Assoc. Professor
Baumgartner, John M.
Asst. Professor
Clifford, Carol L.
Associate
Daskal, Ellyn Gail
Instructor
Gaseor, Cheryl Lynn
Instructor
Graner, Darlene
Associate
Gudmundsen, Gail
Associate
Hill, David
Associate
Hutchins, Brad
Associate
Kingsbury, Nancy
Associate
Klodd, David A.
Assoc. Professor
Klor, Barry M.
Associate
Kominsky, Perrie
Associate
Longinotti, Cheryl S.
Associate
McCarthy, Patricia Ann
Assoc. Professor
Milianti, Franklin
Associate
Mlcoch, Anthony G.
Associate
Montgomery, Lynne D.
Instructor
O'Connor, Cathleen A.
Associate

Peach, Richard K.
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Peterson, Phyllis
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Smith, Bobbie
Assistant
Steele, Jennifer Lynn
Instructor
Stemmelen, Maureen T.
Instructor
Thunder, Thomas D.
Associate
Van Slyke, Patricia Ann
Instructor
Winkels, Kathy
Associate
Yedor, Katherine E.
Associate
Young, Carolyn V.
Associate

Community Health Nursing

Easley, Cheryl E.
Assoc. Professor
Chair
Christiansen, Kathryn
Asst. Professor
Assoc. Chair
Cukr, Penelope
Asst. Professor
Asst. Chair
Allen, Sheila
Instructor
Appleyard, Joann
Instructor
Bobek, Christine J.
Associate
Burgess, Wendy K.
Instructor
Burke, Joan Margaret
Instructor
Clemmings, Linda L.
Asst. Professor
Counte, Michael
Assoc. Professor
Crayton, June
Instructor
Daly-Gawenda, Debra A.
Asst. Professor
Edwards, Linda H.
Assoc. Professor
Fenton-Miller, Kathy
Associate
Fruh, Sharon
Instructor
Hauck, Lynnette J.
Instructor
Hays, Mir Miller
Instructor
Huna-Calandra, Marcia
Instructor
Jamison, Dianne
Instructor
Knuth, Georgia M.
Associate

Kunst, Ann E.
Instructor
Levin, Debra Frances
Instructor
McFolling, Sandra
Instructor
McNeil, Barbara
Instructor
Nelson, Linda L.
Instructor
O'Rourke, Marilyn E.
Instructor
Palmer, Carol M.
Associate
Pastorello, Diane
Associate
Sampson, Elaine M.
Instructor
Sapala, Shirley
Asst. Professor
Schlatter, Betty Louise
Associate
Schowalter, Karlene R.
Associate
Shannon, Iris
Assoc. Professor
Smith, Cheryl Ann
Associate
Sommerville, Clara M.
Instructor
Swartout, Kathryn J.
Instructor
Tanner, Lydia
Instructor
Villwock, Michael D.
Instructor
Welch, Barbara
Associate
Yeager-Smith, Diane
Associate

Dermatology

Malkinson, Frederick
Professor
Chair
Abensohn, Meryl K.
Asst. Professor
Altman, Jeffrey
Assistant
Bielinski, Kenneth B.
Asst. Professor
Blankenship, Marshall
Assoc. Professor
Brennan, Terry E.
Asst. Professor
Budz, Jerome
Asst. Professor
Earles, Rene M.
Instructor
Ertle, James O.
Asst. Professor
Fleming, Matthew G.
Asst. Professor
Gehlmann, Louisa M.
Asst. Professor
Kalis, John B.
Asst. Professor

Kaplan, Sidnay
Emeritus
Keane, John T.
Asst. Professor
Levitt, Leonard
Asst. Professor
Magne, Theresa Treanor
Assistant
Marschall, Stephanie F.
Asst. Professor
Moore, Julie Anne
Asst. Professor
O'Donoghue, Marianne
Assoc. Professor
Pearson, Roger W.
Professor
Rosenbaum, Marjorie M.
Asst. Professor
Spinka, Harold M.
Emeritus
Stockton, Donna L.
Asst. Professor
Strohl, Lee H.
Asst. Professor
Swan, Lori Siegert
Assistant
Wyhinny, Patricia
Asst. Professor

Diagnostic Radiology and Nuclear Medicine

Petasnick, Jerry P.
Professor
Chair
Ackerman, Laurens V.
Professor
Adler, Yolanda T.
Assoc. Professor
Alcorn, Franklin S.
Professor
Ali, Amjad
Assoc. Professor
Berlin, Leonard
Professor
Broderick, Lynn M.
Assistant
Brown, Suzanne L.
Assistant
Brunner, Michael C.
Asst. Professor
Buenger, Richard E.
Professor
Cambray-Forker, E.
Assistant
Capek, Michael
Instructor
Chang, Wei
Professor
Charletta, Dale A.
Asst. Professor
Charters, John R.
Asst. Professor
Chekuri, Lavanya
Assistant

Connolly, John E.
Assistant
Dew, Linda
Asst. Professor
Dieschbourg, Janice
Asst. Professor
Dowd, Anne
Assistant
Dowlathahi, Kambiz
Asst. Professor
Drugay, Joseph J.
Asst. Professor
Duda, Eugene E.
Assoc. Professor
Eisenstein, Matthew M.
Instructor
Epstein, Avrum J.
Instructor
Fordham, Ernest W.
Professor
Freimanis, Maija
Asst. Professor
Geremia, Glen K.
Assoc. Professor
Gilroy Jr, Philip W.
Assistant
Gooneratne, Nihal S
Assoc. Professor
Gore, Margaret D.
Asst. Professor
Guido, John J.
Assistant
Han, Bokyoung Kim
Professor
Henrikson, Glenn C.
Instructor
Huckman, Michael S.
Professor
Jagannathan, Subbia G.
Instructor
Jokich, Michael D.
Instructor
Jokich, Peter M
Assoc. Professor
Jones, Ann F.
Asst. Professor
Karavattuveetil, Reeni
Assistant
Kim, Tae Woo
Instructor
Kisling, Gregory Michael
Assistant
Kral, Madonna
Assistant
Lessin, Barry D.
Instructor
Lukancic, Steven P.
Assistant
Matalon, Terence A.
Assoc. Professor
Matthew, Guy R
Assoc. Professor
Mintz, Arl D
Instructor
Monticciolo, Debra L
Asst. Professor
Nadimpalli, Surya P.
Asst. Professor

Patel, Pravin S.
Asst. Professor
Patel, Suresh K
Professor
Patzik, Shayle Brian
Assistant
Rabin, David N
Asst. Professor
Ramanauskas, William L.
Instructor
Rayudu, Garimella V
Professor
Rosenson, Andrew Scott
Assistant
Siliunas, Donatas
Assistant
Silver, Bruce A
Assoc. Professor
Smith, Claire S
Professor
Smith, Gail
Assistant
Supan, William A.P.
Instructor
Sukerkar, Arun N.
Asst. Professor
Turner, David A
Professor
Wang, Jin-Zhao
Asst. Professor

Family Medicine

Brueschke, Erich
Professor
Chair
Schwer, William
Assoc. Professor
Assoc. Chair
Dent, Thomas
Assoc. Professor
Asst. Chair
Ahmed, Khalid F.
Associate
Ahomka-Lindsay, Dinah
Assistant
Albovias, Susan P.
Instructor
Altman, Scott R.
Instructor
Anderson, Donald
Asst. Professor
Anderson, Philip
Professor
Andrews, Steven L.
Instructor
Anneken, Steven M.
Instructor
Antony, Alphonsa C.
Instructor
Atlas, Gerald D.
Asst. Professor
Baba, Walten A.
Assoc. Professor
Bading, Eva
Asst. Professor
Baraglia, James P.
Asst. Professor

Barber, Frederick A.
Asst. Professor
Barkin, Robert
Asst. Professor
Bell, Michael M.
Instructor
Belrose, Marc
Instructor
Bennett, Donald R.
Assoc. Professor
Bennett, Stephen G.
Instructor
Berndt, Sheila M.
Asst. Professor
Berndtson, Keith R.
Asst. Professor
Bhoopal, Vasireddy
Instructor
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Health Systems Management

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 Grosse, Debra A.
 Asst. Professor
 Grote, Christopher L.
 Asst. Professor
 Haut, Allyson, E.
 Asst. Professor
 Hoeppner, Jo-Ann L. B.
 Visit. Asst. Prof.
 Johnson, Marilyn A. *
 Asst. Professor
 Johnson, Paul
 Asst. Professor
 Lapporte, Ronald A.
 Instructor

Leavitt, Frank *
 Assoc. Professor
 Lloyd, Stephen R. *
 Asst. Professor
 Lofgren, Katharine A.
 Asst. Professor
 Lopez, Martita *
 Asst. Professor
 Mead, John D. *
 Asst. Professor
 Monti, Laura
 Instructor
 Nelson, Michael N. *
 Assoc. Professor
 Nyenhuis, David L.
 Asst. Professor
 Pergament, Geraldine G.
 Asst. Professor
 Pisani, Vincent D.
 Asst. Professor
 Ristanovic, Ruzica
 Asst. Professor
 Rosen, Warren D.
 Asst. Professor
 Rothenberg, Saul *
 Asst. Professor
 Rybarczyk, Bruce D.
 Asst. Professor
 Sachs, Roberta
 Asst. Professor
 Schoenenberger, Joseph
 Asst. Professor
 Sher, Tamara
 Asst. Professor
 Sivan, Abigail B.
 Asst. Professor
 Stebbins, Glenn T.
 Asst. Professor
 Stewart, James D.
 Asst. Professor
 Wasylw, Orest
 Asst. Professor
 Wilson, Robert S. *
 Assoc. Professor
 Yellen, Suzanne B.
 Asst. Professor
 Young, Michael
 Assoc. Professor
 Zitter, Robert E.
 Asst. Professor

Religion, Health & Human Values

Burton, Laurel A.
 Professor
 Chair
 Berndtson, Keith R.
 Instructor
 Bosek, Marcia S.
 Asst. Professor
 Brown, Max Douglas
 Assoc. Professor
 Burbank, Barbara Beth
 Asst. Professor
 Burck, Russell
 Assoc. Professor

Carton, Robert
 Instructor
 Conrad, Barbara
 Instructor
 Corrigan, James V., OSA
 Assoc. Professor
 DuBose, Edwin Rembert
 Asst. Professor
 Elliot, Thomas F.
 Instructor
 Fitchett, George
 Assoc. Professor
 Fitzpatrick, Joyce
 Associate
 Hamel, Ronald P.
 Assoc. Professor
 Hovde, Christian A.
 Emeritus
 Llewellyn, John W.
 Instructor
 O'Reilly, Jo Ann
 Asst. Professor
 Opacich, Karin J.
 Instructor
 Rascon, Daniel
 Instructor
 Rosenblum, Dolores
 Asst. Professor
 Rowe, John M.
 Instructor
 Savage, Teresa A.
 Instructor
 Sheldon, Mark Peter
 Assoc. Professor
 Stainton, Mary Easton
 Instructor
 Zbilut, Joseph P.
 Asst. Professor

Surgical Nursing

Llewellyn, Jane
 Assoc. Professor
 Acting Chair
 Thomas, Charlene
 Instructor
 Acting Assoc. Chair
 Lauer, Mary K.
 Asst. Professor
 Acting Asst. Chair
 Akre, David A.
 Instructor
 Arsenault, Linda A.
 Associate
 Baumann, Lynn Ann
 Instructor
 Bernard, Linda
 Asst. Professor
 Biala, Gerald E.
 Associate
 Bronsted, Rebecca K.
 Instructor
 Brosnan, Hannah
 Instructor
 Brozenec, Sally
 Asst. Professor

Buckley, Susan P.
Instructor
Carvey, Paul
Assoc. Professor
Casey, Ginny M.
Instructor
Coveny, Sara B.
Associate
Cummings, Marilyn A.
Instructor
Czurylo, Kathy
Associate
Daly, Kathleen Ann
Instructor
DiPlotti, Karla
Associate
Dougherty, Janet Kay
Instructor
Drezek, Elizabeth
Associate
Dubrosky-Marcon, J.
Instructor
Emblen, Julia Dianne
Associate
Eriksson, Joann H.
Asst. Professor
Faut-Callahan, Margaret
Assoc. Professor
Feingold, Deborah J.
Associate
Galanes, Susan E.
Associate
Gianino, Janet Magolan
Instructor
Glosky, Deborah
Associate
Goodman, Michelle
Asst. Professor
Gouty, Carol Ann
Associate
Gregus, Margaret
Associate
Hirsch, Debra A.
Associate
Holden, Joan
Instructor
Howland-Gradman, June
Associate
Jagmin, Marianne
Asst. Professor
Kang, Christine M.
Instructor
Keithley, Joyce
Assoc. Professor
Kemp, Mildred G.
Assoc. Professor
Kohn, Carol L.
Asst. Professor
Kull, Laura
Instructor
Labriola, Rose
Instructor
Lanigan, Kathleen
Instructor
Lauder, Winifred
Instructor
Lawinger, Sandra J.
Instructor

Marshall, Julie
Associate
Martin, Barbara
Instructor
McGuire, Lora
Associate
McCulloch, Catherine S.
Associate
McMyn, Ruth
Instructor
Mendelson, Lisa Sigg
Instructor
Minnick, Ann M.
Professor
Morreale, Barbara
Instructor
Nelson, Joan
Instructor
Paice, Judith
Asst. Professor
Paulford-Lecher, Nora L.
Instructor
Piasecki, Patricia A.
Instructor
Pietschmann, Kathleen
Associate
Podloski, Janice L.
Asst. Professor
Pottage, Marian
Associate
Poulson, Elizabeth
Instructor
Robertson, Sandra S.
Instructor
Rodts, Mary M.
Asst. Professor
Rosenwinkel, Malinda
Instructor
Rozanski, Lorna A.
Instructor
Ryan, Catherine
Associate
Saba, Mary T.
Instructor
Schillo, Richard
Associate
Schuch, Joanne M.
Instructor
Schwelnus, Erika M.
Instructor
Sinkora, Glenda
Associate
Stoops, Joyce
Associate
Suhayda, Rose
Asst. Professor
Tarnow, Jane
Associate
Terry, Cheryl Denise
Instructor
Thomas, Charlene
Instructor
Trusler, Lisa
Instructor
Uebele, Joan A.
Instructor
White, Martha
Instructor

Williams, Ruth M.
Instructor
Winkelman, Lois
Instructor
Wittert, Donna
Associate
Yocum, Carolyn, J.
Associate
Zbilut, Joseph P.
Professor

Therapeutic Radiology

Hendrickson, Frank R.
Professor
Chair
Barnes, Steven D.
Asst. Professor
Blazek, Ed Robert
Asst. Professor
Chang, Wei
Professor
Chu, James C. H.
Professor
Conterato, Dean
Asst. Professor
Galinsky, Dennis L.
Asst. Professor
Griem, Katherine L.
Assoc. Professor
Groch, Mark W.
Professor
Hartsell, William
Asst. Professor
Jette, David
Asst. Professor
Kartha, Ponnunni K. I.
Assoc. Professor
Kelly, Charmayne A.
Assistant
Kramer, Toby
Asst. Professor
Kuznetsova, Marina
Assistant
Lanzl, Lawrence H.
Professor
Lee, Myung-Sook
Assoc. Professor
Murthy, Anantha K.
Asst. Professor
Phillips, Alexander K.
Asst. Professor
Recine, Diane C.
Assistant
Reddy, Salitha
Assoc. Professor
Rosenberg, Ivan
Assoc. Professor
Rubin, David B.
Asst. Professor
Saclarides, Theodore
Asst. Professor
Sarin, Pramilla
Asst. Professor
Saroja, Kurubarahalli
Asst. Professor

Saxena, Virenda S.
Professor
Shah, Amit B.
Assistant
Urban, John
Asst. Professor
Zusag, Thomas W.
Asst. Professor

Urology

McKiel Jr. Charles F.
Professor
Chair
Bormes, Thomas P.
Asst. Professor
Cottrell, Thomas L. C.
Visit. Asst. Prof.
Ekbal, Shahid S.
Asst. Professor
Engbrecht, Brian Paul
Assistant
Flanagan, Malachi J.
Professor
Guinan, Patrick
Visit. Asst. Prof.
Hoeksema, Jerome
Asst. Professor
Hoyme, Kermit
Instructor
Lenting, Eric L.
Assistant
Levine, Laurence Adan
Asst. Professor
Levine, Stanley R.
Asst. Professor
Merricks, James W.
Emeritus
Papierniak, Frank B.
Emeritus
Pessis, Dennis A.
Assoc. Professor
Plante, John P.
Instructor
Rooney, Peter
Instructor
Rubenstein, Marvin
Instructor
Sadoughi, Nader
Assoc. Professor
Slutsky, Joel N.
Instructor
Sokovich, Ronald S.
Instructor

Alphabetical List

The alphabetical listing of the faculty beginning on the next page includes self-reported data on the highest degree, and university conferring that degree, plus the department(s) in which the faculty member has an appointment.

Abbreviations used in the Alphabetical Faculty Listing to identify departmental appointments.

ANAT	Anatomy
ANES	Anesthesiology
BCH	Biochemistry
CHN	Community Health Nursing
CDS	Communication Disorders and Sciences
CNTR	Clinical Nutrition
CVT	Cardiovascular-Thoracic Surgery
DERM	Dermatology
DIAG	Diagnostic Radiology
FAM	Family Practice
GERN	Gerontological Nursing
GSUR	General Surgery
HSM	Health Systems Management
IMMC	Immunology/Microbiology
MATN	Maternal Child Health Nursing
MED	Internal Medicine
MEDN	Medical Nursing
MPH	Medical Physics
MTPT	Medical Technology and Perfusion Technology
NEU	Neurological Sciences
NEUS	Neurological Surgery
OBG	Obstetrics and Gynecology
OCC	Occupational Therapy
OPTH	Ophthalmology
ORTH	Orthopedic Surgery
OTO	Otolaryngology & Bronchoesphagology
PATH	Pathology
PED	Pediatrics
PHR	Pharmacology
PMR	Physical Medicine & Rehabilitation
PHY	Physiology
PLAS	Plastic and Reconstructive Surgery
PSY	Psychiatry
PSYC	Psychology and Social Sciences
PSYN	Psychiatric/Mental Health Nursing
PVM	Preventive Medicine
RHHV	Religion, Health and Human Values
SURN	Surgical Nursing
THER	Therapeutic Radiology
UROL	Urology

The highest degree listed on the faculty roster system appears under the faculty name with the college. Database limitations permits listing United States colleges and only a few nearby Canadian colleges. Faculty degrees earned outside the United States may list the country or other statement if country not determined at time of publication. More than one degree may be listed at the same level.

Alphabetical Faculty Listing

- Aagesen, Carl
D.O., Univ. of Iowa
PSY
- Aardsma, Allen H.
B.A., Hope College
HSM
- Aaronson, Donald W.
M.D., U. of Illinois-Chgo.
MED
- Abbasi, Ismail M.
M.B.B.S., Egypt
PED
- Abbassian, Mehrdad
M.D., Foreign College
PSY
- Abensohn, Meryl K.
M.D., Washington Univ.
DERM
- Aber, William R.
Ph.D., Florida Int'l. Univ.
PSYC
- Abrahamian, Frida P.
M.D., Ohio State Univ.
MED
- Abramowitz, Bruce
M.D., S.U.N.Y. at Buffalo
MED
- Abrams, Lisa I.
M.D., Loyola U. of Chgo.
MED
- Abtahi, Mohammed
M.D., IRAN
PED
- Abusharif, Hamdala H.
B.S., U. of Illinois-Chgo.
PED
- Acharya, Vasant
M.B.B.S., India
OBG
- Ackerman, Laurens V.
M.D., Ph.D., U. of Ill.-Chgo.
DIAG
- Ackley, William O.
M.D., Chgo. Medical Sch.
GSUR
- Ackman, Jeffrey D.
M.D., U. of Illinois-Chgo.
ORTH
- Adair III, William A.
M.D., Northwestern Univ.
PMR
- Adams, Ralph Antony
M.S., Rush University
OCC
- Adams, Robert Douglas
M.D., U. of Illinois-Chgo.
CVT
- Adams, Verdine
D.P.M., Northwestern Univ.
ORTH
- Adan, Dante C.
M.D., Foreign College
PED
- Adapathya, Shankarnara
M.B.B.S., India
OBG
- Adkins, Geoffrey
M.D., Univ. of Chicago
OBG
- Adler, Solomon
B.S., C.U.N.Y.-City Col.
MED
- Adler, Yolanda T.
M.D., Argentina
DIAG, MED
- Aduss, Howard
D.D.S., Northwestern Univ.
GSUR, PLAS
- Agarwal, Gyan C.
Ph.D., Purdue Univ.
PHY
- Agarwala, Brojendra N.
M.B.B.S., India
PED
- Aguiar, David Joseph
M.D., Wayne State Univ.
OBG
- Ahart, Sharon L.
M.D., Mexico
PED
- Ahlgren, Eric Peter
M.D., U. of Illinois-Chgo.
PSY
- Ahluwalia, Nalina
M.D., Foreign College
MED
- Ahluwalia, Y. Kumar
M.B.B.S., India
PSY
- Ahmadian, Yahya S.
M.D., Iran
PED
- Ahmed, Khalid F.
M.B.B.S., Pakistan
FAM
- Ahmed, Vasia A.
M.B.B.S., Pakistan
MED
- Ahmed, Ziauddin
M.B.B.S., India
MED
- Ahomka-Lindsay, Dinah
M.D., U. of Illinois-Chgo.
FAM
- Ahstrom Jr, James P.
M.D., Northwestern Univ.
ORTH
- Aimi, Kenji
M.D., Japan
OTO
- Aizenstein, Shirley
M.S.N., Loyola U. of Chgo.
GERN
- Akers, Paul T.
D.D.S., Loyola U. of Chgo.
GSUR
- Akindipe, Olufemi A.
M.D., Austrailia
MED
- Akrami, Cyrus
M.D., Iran
PED
- Akre, David A.
M.S., Rush University
SURN
- Akre, Osmund H.
M.D., Rush University
MED
- Al-Abdulla, Raid
M.D., Foreign College
PED
- Al-Jabi, Ayman
M.D., Foreign College
PED
- Alak, Ala M.
Ph.D., Texas Tech. Univ.
BCH
- Alavi, Iltifat A.
M.B.B.S., Pakistan
M.R.C.P., United Kingdom
MED
- Alavi, Nahid
M.D., Iran
MED
- Alber-Jahocki, Denise M.
M.S., Rush University
CDS
- Albert, Brian H.
M.D., U. of Illinois-Chgo.
MED
- Albert, Howard
M.B.B.S., Foreign College
MED
- Albertson, Barbara J.
M.D., U. of Illinois-Chgo.
PED
- Albovias, Susan P.
M.D., Philippines
FAM
- Albrecht, Leslie J.
M.S., Rush University
MEDN
- Alcorn, Franklin S.
M.D., New York University
DIAG
- Alden, Jeremy
B.A., Pennsylvania St. U.
PSYC
- Alder, Gary F.
D.D.S., Northwestern Univ.
GSUR

Alphabetical Faculty Listing

- Alderman, Sarah M.
M.D., U. of Illinois-Chgo.
MED
- Aleman, Marco A.
M.D., U. of Illinois-Chgo.
MED
- Alexander, Jonathan M.
M.D., Northwestern Univ.
DIAG
- Alexander, Maryann
M.S., Northwestern Univ.
MATN
- Ali, Abid Mir
M.B.B.S., Foreign College
NEU
- Ali, Amjad
M.B.B.S., India
DIAG
- Alkaddour, Hala S.
M.D., Foreign College
PED
- Allen, Keith B.
M.D., Univ. of Kansas
CVT
- Allen, Richard M.
M.D., U. of Illinois-Chgo.
OBG
- Allen, Richard R.
M.D., U. of Illinois-Chgo.
PED
- Allen, Robert Michael
D.O., Chgo. Col. of Osteo.
PSY
- Alshabkhoun, Shakeab
M.D., Foreign College
CVT, GSUR
- Altman, Jeffrey
M.D., Rush University
DERM
- Altman, Scott R.
M.D., U. of Cincinnati
FAM
- Altred, Victoria Ann
M.D., Rush University
MED
- Ambrose, Laureen
M.D., Chgo. Medical Sch.
OBG
- Ambrose, Steven
M.D., Northwestern Univ.
OBG
- Amdur, Mark
M.D., Northwestern Univ.
PSY
- Ameli, Hooshang
M.D., India
OBG
- Amstutz, Diane K.
Ph.D., Northern Ill. Univ.
PMR
- Ananth, Mamatha
M.B.B.S., Foreign College
PED
- Andersen, James H.
M.D., U. of Illinois-Chgo.
CVT
- Anderson, David R.
Ph.D., U. of North Dakota,
PSY, PSYC
- Anderson, Donald
M.D., Case Western Res. U.
FAM
- Anderson, Jeffrey E.
M.S., U. of Illinois-Chgo.
GSUR
- Anderson, Kenning M.
M.D., Northwestern Univ.
Ph.D., Univ. of Chicago
BCH, MED
- Anderson, Mary C.
M.D., Rush University
MED
- Anderson, Philip
M.D., Ph.D., U. of Nebraska
FAM
- Anderson, Richard W.
M.D., U. of Ill.-Cham/Urb
OBG
- Anderson Jr., Robert A.
Ph.D., U. of Illinois-Chgo.
OBG, PHY
- Andersson, Gunnar
M.D., Ph.D., Sweden
ORTH
- Andreoli, Kathleen
D.S.N., U. of Alabama-Bghm.
GERN, MEDN
- Andrews, Steven L.
M.D., Ohio State Univ
FAM
- Andriacchi, Thomas P.
Ph.D., U. of Illinois-Chgo.
ANAT, ORTH
- Andricacou, Calliope
M.D., Greece
PED
- Angspatt, Sompongse
M.D., Thailand
PED
- Anneken, Steven M.
M.D., Univ. of Chicago
FAM
- Antony, Alphonsa C.
M.B.B.S., India
FAM
- Appleyard, Joann
M.S.N., Loyola U. of Chgo.
M.P.H., U. of Illinois-Chgo.
CHN
- Arain, Mohammed
M.B.B.S., Pakistan
GSUR
- Arand, Walter A.
M.D., Univ. of Chicago
MED
- Archie, Julian T.
M.D., New York University
OBG
- Arcilla, Rene A.
M.D., Philippines
PED
- Armbruster, Kent
M.D., U. of Illinois-Chgo.
MED
- Armstrong, Claesa
M.D., Med. Col. of Penna.
PSY
- Armstrong, Robert
D.D.S., Northwestern Univ.
GSUR
- Arndt, Thomas R.
M.D., Loyola U. of Chgo.
MED
- Arnecilla, Pablo B.
M.D., Philippines
PED
- Arnone, Robert J.
Ph.D., Loyola U. of Chgo.
PSYC
- Arons, Martin
M.D., West Germany
PSY
- Arora, Anita
M.B.B.S., Foreign College
OBG
- Arora, Vipal K.
M.B.B.S., India
OBG
- Arsenault, Linda A.
M.S.N., U. of Pennsylvania
MEDN, SURN
- Arsenis, Charalampos
Ph.D., Cornell Univ.
BCH
- Aschkenasy, Jean R.
Ph.D., Vanderbilt Univ.
PED, PSYC
- Ashbach, David L.
M.D., Case Western Res. U.
MED
- Atiyah Raja A.
M.D., Foreign College
GSUR
- Atlas, Gerald D.
M.D., U. of Illinois-Chgo.
FAM
- Axelrod, Edward H.
M.D., U. of Illinois-Chgo.
OBG
- Aydelotte, Margaret
Ph.D., United Kingdom
BCH
- Azeem, Asif
M.B.B.S., Pakistan
MED
- Baba, Walten A.
M.D., Iraq
Ph.D., United Kingdom
FAM
- Babakitis, Mary R.
M.D., Greece
PED
- Babi, Bassam R.
M.D., Foreign College
PED
- Bach Jr, Bernard R.
M.D., U. of Cincinnati
ORTH
- Backer, Barbara
M.D., Indiana Univ.
MED

- Bacon, Mary
M.A., Northern Ill. Univ.
CDS, OTO
- Bading, Eva
M.D., Ph.D., West Germany
FAM
- Badrinath, Shyamala K.
M.B.B.S., India
ANES
- Bagdade, John
M.D., Cornell Univ.
BCH, MED
- Bagri, Sushil
M.B.B.S., India
PSY
- Baier, Claudia A.
M.P.H., U. of Minn. Morris
PVM
- Bailey, Larry L.
M.D., Univ. of Kansas
OTO
- Bailey, Orville T.
M.D., Albany Med. Col.
NEU, PATH
- Bajaj, Anil
M.B.B.S., Foreign College
ANES
- Baker, Elizabeth
M.D., Loyola U. of Chgo.
MED
- Baker, Howard Reid
B.S., Loyola U. of Chgo.
MED
- Bakken, C. David
M.D., Baylor Col. of Med.
MED
- Bakris, George Louis
B.A., Indiana University
MED, PVM
- Balagtas, Rolando C.
M.D., Philippines
PED
- Balandrin, Jorge E.
M.D., Mexico
MED
- Balbin, Geraldine Joyce
M.D., Foreign College
PED
- Baldinger, Michael
M.D., C.U.N.Y.-Mt. Sinai. Sch.
MED
- Baldwin, Jr., David
M.D., Rush University
MED
- Baldwin, Sr., David
M.D., Northwestern Univ.
MED
- Balk, Robert A.
M.D., Univ. of Missouri
MED
- Ball, Stephen Kent
M.D., Mississippi State U.
CVT
- Balkoura, Maria H.
M.D., Greece
MED
- Balsam, Adrienne M.
M.D., U. of Illinois-Chgo.
PSY
- Balsamo, Richard R.
M.D., Univ. of Chicago
MED
- Banegas, Marta E.
M.D., Honduras
PSY
- Baraglia, James P.
M.D., Chgo. Medical Sch.
FAM
- Barber, Frederick A.
M.D., U. of Illinois-Chgo.
FAM
- Barcilon, Victor
Ph.D., Harvard University
PHY
- Barkin, Robert
Pharm.D., Purdue Univ.
ANES, FAM, PSYN, PHR,
PSY
- Barkoviak, Michael J.
M.D., Rush University
MED
- Barnes, Louis J.
M.D., U. of Illinois-Chgo.
MED
- Barnes, Steven D.
B.S., East Tennessee St. U.
ANES, PED, THER
- Barnett, Brian A.
M.D., U. of Illinois-Chgo.
ANES
- Baron, David H.
M.D., Case Western Reserve
PSY
- Barrett, David
M.D., Med. Col. of Wisc.
PATH
- Barrett, Jean Ellen
M.S., Illinois Inst. of Tech.
MTPT
- Barrett, John A.
M.D., Foreign College
GSUR
- Barrett, John A.
M.D., Foreign College
GSUR
- Barron, John T.
Ph.D., U. of Cincinnati
MED
- Barron, John W.
M.D., Loyola U. of Chgo.
MED
- Barroso, Eduardo G.
M.D., Univ. of Miami
GSUR
- Barrows, William H.
M.D., Univ. of Chicago
PED
- Barry, Diana
M.B.A., Rosary College
CNTR
- Bartels, Stephanie A.
M.D., U. of Illinois-Chgo.
MED
- Bartlett, Robert
Ph.D., West Germany
MED
- Bartolotta, Ann
M.S., Indiana Univ.
HSM
- Barton, Evan M.
M.D., Johns Hopkins Univ.
MED
- Bartt, Russell Edward
M.D., Rush University
MED
- Basch, Gail M.
M.D., Chgo. Medical Sch.
PSY
- Basch, Michael
M.D., Loyola U. of Chgo.
PSY
- Basheeruddin, Khaja
Ph.D., Foreign College
BCH, MED
- Bass, Gordon
M.M., Northwestern Univ.
HSM
- Bass, Joseph Theodore
M.D., Ph.D., Penn. State. U.
MED
- Bassuk, Angel B.
M.D., Argentina
GSUR, PED
- Basu, Shivaji
M.B.B.S., India
MED
- Batchu, Koteswara R.
M.B.B.S., India
PED
- Batty, Karen N.
M.S., Northern Ill. Univ.
MEDN
- Bauer, Michael R.
M.D., U. of Illinois-Chgo.
MED
- Baumann, Lynn Ann
M.N., Washington State U.
SURN
- Baumgartner, John M.
Ph.D., Southern Ill. Univ.
CDS, OTO
- Baydoun, Adnan B.
M.D., Albany Med. Col.
OBG
- Beard, Melodie
B.S., U. of Southern Ind.
MTPT
- Beausang, Carol
M.S., Colorado Hl. Sci. Ctr
MATN
- Bebelis, Ishoona I.
M.D., Foreign College
GSUR
- Becker, Frank O.
M.D., U. of Illinois-Chgo.
MED
- Beckett, Laurel A.
Ph.D., Stanford Univ.
MED

Alphabetical Faculty Listing

- Beebe, Robert A.
M.D., U. of Illinois-Chgo.
OBG
- Beeman, Mark E.
Ph.D., Univ. of Oregon
NEU
- Beezhold, David William
D.O., Chgo. Col. of Osteo.
MED
- Behabakht, Kian
M.D., Ohio State U.
OBG
- Behner, Kathleen G.
M.B.A., Loyola U. of Chgo.
HSM
- Behrend, Frank L.
M.D., U. of Illinois-Chgo.
OBG
- Belizario, Evangelina
M.D., Philippines
PSY
- Belkengren, Richard
M.D., Loyola U. of Chgo.
PED
- Bell, Charles R.
M.D., Meharry Medical Col.
PED
- Bell, Michael M.
D.O., Chgo. Col. of Osteo.
FAM
- Bellabarba, Carlo
M.D., Foreign College
ORTH
- Bellamy, April
M.D., Howard University
PED
- Bellosa, Nora T.
M.D., Philippines
PED
- Belrose, Marc
M.D., U. of Illinois-Chgo.
FAM
- Benbadis, Selim
M.D., Foreign College
NEU
- Bennett, David
M.D., Rush University
NEU
- Bennett, Donald R.
Ph.D., U. of Michigan
FAM, PHR
- Bennett, Stephen G.
M.D., U. of Illinois-Chgo.
FAM
- Bennett, Thomas O.
M.D., U. of Illinois-Chgo.
OPHT
- Bensen, Richard D.
M.D., U. of South Carolina
MED
- Benson, Constance
M.D., Ohio State Univ.
MED
- Benson, David
M.D., U. of Illinois-Chgo.
PSY
- Benson, Eric P
M.D., Loyola U. of Chicago
MED
- Berendi, Alexander
M.D., Hungary
PSY
- Benzing, William C.
Ph.D., U. of Calif.-San Diego
NEU
- Bergen, Donna
M.D., U. of Illinois-Chgo.
NEU
- Berger, Barry W.
D.O., Chgo. Col. of Osteo.
MED
- Berger, Jack C.
M.D., Univ. of Chicago
PSY
- Berger, Jan
M.D., Loyola U. of Chgo.
PED
- Bergman, Cynthia A.
M.D., Georgetown Univ.
OBG
- Berlin, Leonard
M.D., U. of Illinois-Chgo.
DIAG
- Berman, Mikhail
M.D., Ph.D., Soviet Union
MED
- Bernard, Bryan A
Ph.D., Louisiana St. U.
PSYC
- Bernard, Linda
M.S., Rush University
SURN
- Bernardin, Linda J.
M.S., U. of Wisconsin-Milw.
PSYC
- Berndt, Sheila M.
M.B., United Kingdom
FAM
- Berndtson, Keith R.
M.D., Rush University
FAM, PVM, RHHV
- Bernsen, Mitchell B.
M.D., Rush University
MED
- Berroya, Asuncion C.
M.D., Philippines
MED
- Berry-Kravis, Elizabeth
M.D., Univ. of Chicago
BCH, NEU, PED
- Bertsch, Mary Jo
M.D., Wayne State Univ.
MED
- Bertuzis, Rasa
M.P.H., U. of Illinois-Chgo.
MTPT
- Berzins, Aivars
M.D., Soviet Union
ORTH
- Bessel, Marjorie Jo
M.D., Rush University
MED
- Betlej, Thomas M.
M.D., U. of Illinois-Chgo.
GSUR
- Betz, Eleanor
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CNTR, PVM
- Beverly, Bert I.
M.D., Hahnemann Univ.
PED
- Bezkorovainy, Anatoly
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BCH, CNTR
- Bharani, Sakina
M.B.B.S. India
PED
- Bharati, Saroja
M.B.B.S., India
PED
- Bhatti, Tahir I.
M.D., Univ. of Iowa
PSY
- Bhoopal, Vasireddy
M.B.B.S., India
FAM
- Bhuva, Manish B.
M.D., Univ. of Chicago
MED
- Biala, Gerald E.
M.S., Rush University
SURN
- Bice, Michael K.
M.D., Australia
MED
- Bick, Joseph A.
M.D., U. of Michigan
MED
- Bick, Richard H
M.D., Northwestern Univ.
FAM
- Bielefeld, Denise M.
M.D., Indiana U. of Penna.
FAM
- Bielinski, Kenneth B.
M.D., Chgo. Medical Sch.
DERM
- Bielitzki, Linda D.
J.D., Loyola U. of Chgo.
MTPT
- Bigger, Harold
M.D., Indiana Univ.
PED
- Bijari, Armita
M.D., Rush University
MED
- Billhardt Jr, Roger A.
M.D., Loyola U. of Chgo.
MED
- Billman, Daniel O.
M.D., Hahnemann Univ.
PED
- Bines, Jose'
M.D., Foreign College
MED
- Bines, Steven
M.D., Rush University
GSUR
- Binor, Zvi
M.D., Foreign College
OBG
- Bishop, Catherine L.
B.S., Rush University
MTPT

- Bishop, Jacqueline J.**
M.M., Northwestern Univ.
HSM
- Blaauw, Bernard B.**
M.D., U. of Illinois-Chgo.
MED
- Black, Henry R.**
M.D., New York Med. Col.
MED, PVM
- Black, Jonathan**
Ph.D., U. of Pennsylvania
ORTH
- Black, Mark James**
D.D.S., U. of Illinois-Chgo.
GSUR
- Blackman, John David**
M.D., Rutgers Univ.
MED
- Blaine, Richard M.**
M.D., Loyola U. of Chgo.
OPHT
- Blair, Andrew Thomas**
M.D., Rush University
MED
- Blair, John N.**
M.D., Indiana Univ.
PED
- Blair, Kenneth M.**
M.D., Wayne State Univ.
FAM
- Blankenship, Marshall**
M.D., U. of Illinois-Chgo.
DERM
- Blankshain, Richard H.**
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OBG
- Blazek, Ed Robert**
Ph.D., S.U.N.Y. at Buffalo
THER
- Blesch, Karen Smith**
M.S., Northern Ill. Univ.
MEDN
- Bliss, David F.**
M.A., Univ. of Chicago
M.B.A., U. of Illinois-Chgo.
HSM
- Block, Joel A.**
M.D., Washington Univ.
BCH, MED
- Block, Leslie J.**
M.D., Chgo. Medical Sch.
OTO
- Bloom, Kenneth J.**
M.D., Rush University
PATH
- Bloom, Robert W.**
M.D., Rush University
PSY, PSYC
- Blumenthal, Stanley A.**
M.D., New York University
MED
- Boarden, Wilfred**
M.D., U. of Illinois-Chgo.
NEUS
- Boatwright, Patricia M**
M.D., U. of Michigan
OBG
- Bobek, Christine J.**
M.S., Rush University
CHN
- Bobek-Pappalardo, Bonnie**
M.S.N., St. Louis Univ.
MATN
- Boehm, Beate B.**
Ph.D., Foreign College
BCH
- Bolanos, Jose M.**
M.D., Mexico
PATH
- Bolton, Cornelius F.**
M.D., Meharry Med. Col.
MED
- Bolton, Edmund**
M.D., Meharry Med. Col.
MED
- Bone, Roger C.**
M.D., Univ. of Arkansas
MED
- Bonfiglio, Richard P.**
M.D., Univ. of Michigan
PMR
- Bonifer, Thomas M.**
M.D., Wayne State Univ.
ANES
- Bonnin, Arturo J.**
M.D., Spain
IMMC
- Bonomi, Philip D.**
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MED
- Borenstein, Martin J.**
D.O., Chgo. Col. of Osteo.
PED
- Borkgren, Marilyn W.**
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MEDN
- Bormes, Gregory William**
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GSUR
- Bormes, Thomas P.**
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UROL
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GSUR
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ORTH
- Bosch, Albert V.**
M.D., SPAIN
ORTH
- Bosek, Marcia S.**
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MEDN, RHHV
- Boskovich, Sara Jeanette**
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CHN
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CNTR
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ANES
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FAM
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OBG
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ORTH
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OCC
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NEU
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DIAG
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FAM
- Brasch, Joel G.**
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OBG
- Braun, Bennett G.**
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PSY
- Braun, Donald**
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- Braun, Leonard L.**
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ANES, PHY
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PED
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IMMC
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IMMC
- Brennan, Terry E.
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DERM
- Breuhau, Herbert C.
M.D., Rush University
MED
- Brill, John H.
M.D., Ohio State Univ.
MED
- Britton-Kuzel, Catheri
M.D., Rush University
PATH
- Broadbent, Michael
Ph.D., U.C.L.A.
MPH
- Brocken, Cecilia
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PED, PSYC
- Brockman, David John
B.S., U. of Illinois-Chgo.
PMR
- Brocks, Dietrich
Ph.D., West Germany
BCH
- Broderick, Lynn M.
M.D., U. of Cincinnati
DIAG
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M.D., S.U.N.Y. Downstate
PVM
- Bromberg, Merrick J.
D.O., Chgo. Col. of Osteo.
PED
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OBG
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M.S., Rush University
SURN
- Broome, Marion
Ph.D., Univ. of Georgia
MATN
- Brosnan, Hannah
M.S., Rush University
SURN
- Brown Jr, Calvin R.
M.D., Wayne State Univ.
MED
- Brown, Dawn
M.S., U. of Illinois-Chgo.
MATN
- Brown, Donald K.
M.D., U. of Illinois-Chgo.
PED
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PED
- Brown, Marie T.
M.D., Rush University
MED
- Brown, Mary Elizabeth
M.D., Rush University
MED
- Brown, Max Douglas
J.D., De Paul Univ.
HSM
- Brown, Michael D.
M.D., U. of Illinois-Chgo.
MED
- Brown, Patricia I.
M.D., U. of Illinois-Chgo.
PED
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M.D., Rush University
MED
- Brown, Robert W.
M.D., Baylor Col. of Med.
FAM
- Brown, Roger
Ph.D., Univ. of Michigan
PSYC
- Brown, Sarah Freeman
M.D., Univ. of Iowa
PSY
- Brown, Suzanne L.
M.D., Tift College
DIAG
- Brown, William C.
M.D., U. of Cincinnati
MED
- Browning, Kenneth R.
M.D., U. of Illinois-Chgo.
MED
- Brozenec, Sally
M.S., Rush University
SURN
- Brubaker, Linda
M.D., Rush University
OBG
- Brueschke, Erich
M.D., Temple University
FAM, PHY
- Bruetman, Martin E.
M.D., Argentina
NEU
- Brukoff, Christopher D.
M.D., Rush University
ANES
- Brunner, Michael C.
M.D., Stanford University
DIAG
- Bryan, James McMaster
M.D., Australia
ORTH
- Buch, Piyush C.
M.B.B.S., India
PSY
- Buchanan, Robert W.
M.D., U. of Nebraska
PSY
- Buchanan, Victoria C.
M.D., Univ. of Texas
MED
- Buchelares, Gunther H.
M.D., West Germany
MED, PED
- Buchman, Aron S.
M.D., Chgo. Medical Sch.
NEU
- Buck, David W.
M.D., Indiana Univ.
PSY
- Buck, Tracy
M.S., U. of Ill.-Cham/Urb
HSM
- Buckley, Susan P.
M.S., Rush University
SURN
- Buckner, Reneau Albert
M.S., Northwestern Univ.
MATN
- Buder, Alex
M.D., Argentina
MED
- Budz, Jerome
M.D., Loyola U. of Chgo.
DERM
- Buenger, Richard E.
M.D., Northwestern Univ.
DIAG
- Buentello, Gloria N.
M.D., Mexico
PED
- Bufano, Suzanne
M.S., Purdue University
PSYC
- Buka, Jonathan
M.D., U. of Cincinnati
OPHT
- Bulger, Richard F.
M.D., U. of Illinois-Chgo.
OTO
- Bullard, Scott Jay
M.D., U. of Illinois-Chgo.
MED
- Bulmash, Jack Martin
M.D., U. of Illinois-Chgo.
MED
- Bumsted, Robert M.
M.D., U. of Wisconsin
OTO
- Bunn, Melvin C.
M.D., Creighton Univ.
OBG
- Burbank, Barbara Beth
M.T.S., Prot. Epis. Theol.
RHHV
- Burcham, James M.
Ph.D., Iowa State Univ.
ANAT, PED
- Burck, Russell
Ph.D., Princeton Theo. Sem.
RHHV
- Burdick, Allison L.
M.D., U. of Illinois-Chgo.
FAM
- Burgess, Wendy K.
Ph.D., U. of Wisconsin -Milw.
CHN

- Burke, Joan Margaret
M.S., Loyola U. of Chgo.
CHN
- Burks, James Howard
M.D., Foreign College
MED
- Burstein, David M.
M.D., U. of Minnesota-Duluth
MED
- Burton, Laurel A.
Th.D., Boston University
RHHV
- Burton, Wayne N.
M.D., Univ. of Oregon
PVM
- Busch, Katie
M.D., U. of Wisconsin
PSY
- Bush-Joseph, Charles
M.D., Univ. of Michigan
ORTH
- Butler, Craig D.
M.D., Rush University
PED
- Butler, Joi Alane
M.D., U. of Illinois-Chgo.
PED
- Byrne, Richard William
M.D., Northwestern Univ.
NEUS
- Cahill, Maureen
M.S.N., Boston University
MATN
- Cain, Thomas
M.D., Northwestern Univ.
MED
- Calabrese, Peter A.
D.O., Chgo. Col. of Osteo.
FAM
- Caldarelli, David D.
M.D., U. of Illinois-Chgo.
OTO
- Calden, Martha E.
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PMR
- Caldwell, Richard G.
M.D., Univ. of Vermont
GSUR
- Callahan, Patrick
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ANES
- Calvin, James E.
M.D., Dalhousie Univ.
MED
- Camacho, Bienvenido
M.D., Philippines
FAM
- Camacho, Felicitas C.
M.D., Philippines
PED
- Cambron, Kimberly Ann
B.S., Texas Wesleyan College
OCC
- Cameron, Jeffrey
M.D., Northwestern Univ.
PMR
- Campbell, Bruce C.
D.P.H., U. of Illinois-Chgo.
HSM
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M.D., Rush University
OTO
- Campbell, Stuart W.
Ph.D., Univ. of Delaware
PSYC
- Cann, Stephen R.
M.D., Chgo. Medical Sch.
PSY
- Cannon, Joseph P.
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GSUR
- Cannon, Robert Lee
M.D., Indiana Univ.
OPHT
- Cantorna, Bernard
M.D., Cuba
PED
- Capek, Michael
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DIAG
- Carasso, Ben
M.D., Greece
MED
- Carlock, William D.
M.D., U. of Illinois-Chgo.
PSY
- Carlson, Elizabeth
D.N.Sc., Rush University
MEDN
- Carlson, Lawrence D.
M.D., St. Louis Univ.
MED
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PSYN
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M.B.A., Univ. of Detroit
M.S., Northeastern Ill. U.
HSM
- Carpenter, Lowell D.
M.D., Case Western Res. U.
MED
- Carr, Ian R.
M.B.B.S., United Kingdom
PED
- Carr, Janet
M.D., Meharry Medical Col.
PED
- Carroll, Karen
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MATN
- Carstens, Richard
Ph.D., U. of Illinois-Chgo.
ANES
- Carter, Kevin-Anthony
M.D., U. of Illinois-Chgo.
MED
- Carton, Robert
M.D., Northwestern Univ.
MED, RHHV
- Cartwright, Rosalind D.
Ph.D., Cornell Univ.
PSYC
- Carvey, Paul
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SURN, PHR
- Cascino, Christopher J.
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NEUS
- Casey, Ginny M.
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SURN
- Casey, Larry C.
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Ph.D., Georgetown Univ.
BCH, MED
- Casini, Jack G.
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ORTH
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MEDN
- Catchpole, Hubert R.
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NEU
- Catibog, Jose Edgardo V.
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PED
- Cattamanchi, Geetha R.
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PED
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M.D., Spain
OBG
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M.D., U. of Pennsylvania
PSY
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M.D., Northwestern Univ.
MED, OBG, PSY
- Cavens, Robert Lee
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FAM
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MED, PSYC
- Chaco, Lena M.E.
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FAM
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OBG
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MED
- Chan, Paulino
M.D., Philippines
ORTH
- Chande, Sumitra
M.B.B.S., India
PED
- Chandler, Jesse S.
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OBG
- Chandra, Govind
M.D., India
MED
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ANES

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M.D., Taiwan
PED
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DIAG, MPH
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MEDN
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FAM
- Charletta, Dale A.
B.A., Rice University
DIAG
- Charters, John R.
M.D., U. of Michigan
DIAG
- Chase, Robert A.
M.D., Rush University
MED
- Chassin, Eric Philippe
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ORTH
- Chatta, Fozia A.
M.B.B.S., Foreign College
MED
- Chaudhary, Farzana S.
M.B.B.S., Pakistan
PED
- Chaudhary, Mohammad Y.
M.D., Pakistan
PED
- Chaudhuri, Gouri
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PMR
- Chavarria, Arturo
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MED
- Chavez, Loritz Maritza
M.D., U. of Texas Hl. Sci. Ctr.
MED
- Chaviano, Antonio H.
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UROL
- Chawapun, Ponpimol
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FAM
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DIAG
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M.D., Taiwan
PED
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MED
- Cheung, Steve
M.D., Ph.D., U. of Louisville
OBG
- Chez, Michael G.
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PED
- Chhablani, Ramesh
M.B.B.S., India
MED
- Childs, Ronald Clayton
M.D., Howard University
ORTH
- Chilis, Thomas J.
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PATH
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M.D., No
- Chor, Philip N.
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PSY
- Choudhry, Anwar S.
M.D., Foreign College
CVT, GSUR
- Christian, Joseph R.
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PED
- Christiansen, Kathryn
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CHN
- Christman, Luther
Ph.D., Michigan State U.
PSYN, PSYC
- Christopher, Beth Anne
M.S., U. of Michigan
MEDN
- Christopoulos, Angelos
M.D., Greece
PSY
- Chronis, Basil G.
M.D., Greece
OBG
- Chronis, George Basil
M.D., U. of Illinois-Chgo.
OBG
- Chu, Chae On
M.D., Rush University
MED
- Chu, James, C.H.
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MPH, THER
- Chudwin, David S.
M.D., U. of Michigan
IMMC, PED
- Citronberg, Robert J.
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MED
- Claman, Maurice A.
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GSUR
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- Clark, David C.
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PSY, PSYC
- Clark, David John
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ORTH
- Clark, James G.
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MED
- Clark, Susan H.
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PSY
- Clarke, Jan Andree
M.D., Cornell Univ.
MED
- Clarke, Roberta Helen
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CNTR
- Clasen, Raymond A.
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PATH
- Cleary, Jennifer
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- Clemmings, Linda L.
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CHN
- Clifford, Carol L.
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- Cline, Kenneth N.
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- Close, Heidi R.
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- Cobleigh, Melody A.
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MED
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OPHT
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- Cohn, Steven Richard
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- Colandrea, Michael A.
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- Cole, Ada A.
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BCH, MED
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ANES, PSYC
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MED
- Coleman, James E.**
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- Coleman, Jennifer Kaye**
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- Collins, James J.**
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ANES
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ORTH
- Colodny, Charles**
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FAM
- Coltro, Jerry R.**
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- Combs, Gene Norman**
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- Connolly, Maureen**
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- Conrad, Barbara**
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MATN, RHHV
- Conroe, Henry G.**
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PSY
- Conterato, Dean**
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THER
- Conway, Terrence**
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MED
- Cook, Barbara S.**
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CDS
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PLAS
- Cook, Richard O.**
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OBG
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PED
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IMMC, PATH, GSUR
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PSY
- Corcos, Daniel M.**
Ph.D., Univ. of Oregon
NEU
- Cornella-Carlson, Tracey L.**
B.S., U. of Cal.-Santa Barbara
PSY
- Corrigan, James V., OSA**
MA Loyola U. of Chgo.
RHHV
- Costabile, Dominic**
D.O., Chgo. Col. of Osteo.
FAM
- Cotner, Carol Lou**
M.S., U. of Nebraska
CNTR
- Cottrell, Thomas L. C.**
M.D., Loyola U. of Chgo.
UROL
- Couden, Trevert**
M.D., Northwestern Univ.
ORTH
- Counte, Michael**
Ph.D., U. of Ill.-Cham/Urb
HSM, CHN, PSYC
- Coupet, Edourd**
M.D., U. of Illinois-Chgo.
OBG
- Coy, Dale L.**
M.D., Ohio State Univ.
MED
- Crawford, James W.**
M.D., Ph.D., Univ. of Chicago
PSY, PSYC
- Crawford, Paul W.**
M.D., Loyola U. of Chgo.
MED
- Crayton, June**
B.S.N., U. of Illinois-Chgo.
CHN
- Crocker, Diane W.**
M.D., Boston University
PATH
- Cronin-Stubbs, Diane**
D.N., Loyola U. of Chgo.
GERN
- Cs-Szabo, Gabriella**
Ph.D., Foreign College
BCH
- Cuadros, Hugo F.**
M.D., Bolivia
MED
- Cuevas, Jorge L.**
Ph.D., U. of Alabama -Bghm.
PSYC
- Cukr, Penelope**
D.N.Sc., Rush University
CHN
- Cullinan, John**
M.D., U. of Illinois-Chgo.
FAM
- Cummings, Marilyn A.**
M.S., Northern Illinois U.
SURN
- Cuneo, Bettina F.**
M.D., Univ. of Wisconsin
PED
- Cupeles, Angela B.**
M.D., Tufts University
PED
- Curgian, Linda M.**
M.S.N., Yale University
MEDN
- Curnyn, Kimberlee**
M.D., U. of Illinois-Chgo.
OPHT
- Curran, Peter G.**
M.D., Columbia Univ.
MED
- Currie, Andrew G.**
M.M., Northwestern Univ.
HSM
- Currie, Robert E.**
M.D., U. of Illinois-Chgo.
FAM
- Curtin, Jeffrey C.**
NEU
- Cutilletta, Anthony F.**
M.D., Loyola U. of Chgo.
PED
- Cyrkowicz, Pawel A.**
M.D., Foreign College
PATH
- Czerniejewski, Richard**
M.D., S.U.N.Y. at Buffalo
PED
- D'Angelo, Charles M.**
M.D., Univ. of Vermont
NEUS
- D'Silva, Joseph L.**
M.D., Rush University
ORTH
- Dabek, Theresa M.**
M.D., Rush University
FAM
- Dado Jr, Ralph N.**
M.D., Loyola U. of Chgo.
OPHT

Alphabetical Faculty Listing

- Dainauskas, John R.
M.D., Loyola U. of Chgo.
PATH
- Dalal, Suniti
M.D., India
OBG
- Dalessandro, Alan
D.D.S., Loyola U. of Chgo.
GSUR
- Dall, Carol J
M.S., U. of Illinois-Chgo.
GERN
- Dallas, Constance
M.S., St. Xavier College
MATN
- Daly, Camilla S.
M.S., Loyola U. of Chgo.
MATN
- Daly, Kathleen Ann
M.S., U. of Illinois-Chgo.
SURN
- Daly-Gawenda, Debra A.
M.S., U. of Illinois-Chgo.
CHN
- Dampitz, Robert E.
M.D., Loyola U. of Chgo.
PED, PSY
- Dana, Melissa Reed
M.D., Univ. of Missouri
MED
- Dangles, George J.
M.D., U. of Illinois-Chgo.
OPHT
- Dani, Michael F.
D.D.S., U. of Illinois-Chgo.
GSUR
- Daniel, Ronald O.
M.D., New York Med. Col.
OBG
- Danko, Henry
M.D., Rush University
MED
- Darki, Abdul H.
M.D., Iran
PED
- Daskal, Ellyn Gail
M.S., Univ. of Wisconsin
CDS
- Daugherty, Milton H.
M.D., Meharry Medical Col.
PSY
- Daugherty, Steven R.
Ph.D., Univ. of Chicago
PSYC
- Daum, Thomas D.
M.D., Univ. of Kentucky
FAM
- DaValle, Michael J.
M.D., Loyola U. of Chgo.
CVT
- David, Paul P.
M.D., West Germany
PSY
- Davidson, Michael H.
M.D., Ohio State Univ.
MED, PVM
- Davila, Fidel
M.D., Harvard University
MED
- Davis, Andrew M.
M.D., Univ. of Chicago
MED, PVM
- Davis, Beth C.
M.D., U. of Illinois-Chgo.
OBG
- Davis Jr, Carl B.
M.D., Univ. of Chicago
GSUR
- Davis, Floyd A.
M.D., U. of Pennsylvania
NEU
- Davis, John Scott
M.D., Rush University
GSUR
- Davis, Nancy Lynn
M.S., Rush University
GERN
- Davis, Zev
M.D., Israel
CVT
- Davison, Daniel T.
D.O., Michigan State U.
FAM
- DeCoursey, Thomas E.
Ph.D., U. of Cincinnati
PHY
- De Geest, Koen
M.D., Belgium
OBG
- De Jong, George
M.D., Michigan State U.
MED
- De La Cruz, Marco A.
M.D., U. of Illinois-Chgo.
FAM
- De Laria, Giacomo A.
M.D., Tufts University
CVT
- DeLeo, Caesar A.
M.D., Foreign College
MED
- DeMonterice, Donna
M.N., U. of Pittsburgh
MATN
- De Peyster, Frederic
M.D., Rush University
GSUR
- De Rose, William F.
M.D., Northwestern Univ.
MED
- De Sa Pereira, E.
M.D., Brazil
PSY
- De Stefano, Michael D.
M.D., Rush University
PED
- DeToledo-Morrell, Leyla
Ph.D., McMaster Univ.
NEU, PSYC
- DeWald, Christopher
M.D., Rush University
ORTH
- DeWald, Ronald L.
M.D., U. of Illinois-Chgo.
ORTH
- Deal, Barbara J.
M.D., Northwestern Univ.
PED
- Deam, Malcolm
M.D., Northwestern Univ.
MED
- Dean, Robert K.
M.D., Ohio State Univ.
PLAS
- Dearie, Joseph Charles
M.D., Emory University
GSUR
- Debre, Michael W.
M.D., Loyola U. of Chgo.
MED
- Dederick, Margarida M.
M.D., Brazil
PSY
- Dejong, Steven A.
M.D., Loyola U. of Chgo.
GSUR
- Del Campo, Jose A.
M.D., Cuba
PSY
- Delach, Anthony C.
M.D., Mexico
PED
- Delaconcha, Jose
M.D., Mexico
PED
- Delaney, Kathleen
D.N.Sc., Rush University
PSYN
- Delaney, Paul
D.D.S., U. of Illinois-Chgo.
GSUR
- Delater, Shawn M.
M.D., U. of Michigan
FAM
- Delbusto, Paul R.
M.D., U. of Illinois-Chgo.
MED
- Delneky, Joyce A.
M.D., Mexico
FAM
- Demange, Gilbert R.
M.D., Loyola U. of Chgo.
GSUR
- Demarais, Patricia L.
M.D., Wayne State Univ.
MED
- Demos, George
M.D., Rush University
MED
- Dempsey, Michael C.
M.D., Rush University
PSY
- Dennis, Richard F.
M.D., U. of Illinois-Chgo.
OPHT
- Dennis, Vernon L.
M.D., Univ. of Alberta
OBG

- Dent, Thomas
M.D., U. of Illinois-Chgo.
FAM
- Derian, Edie L.
M.D., Loyola U. of Chicago
OBG
- Derman, Gordon H.
M.D., Rush University
PLAS
- Desai, Renuka
M.B.B.S., India
PED
- Deutsch, Thomas A.
M.D., Rush University
OPHT
- Deutsch, William E.
M.D., U. of Illinois-Chgo.
OPHT
- Devetski, Robert
M.D., Indiana Univ.
MED
- Devine-Jacob, Laura T.
M.S.N., Rush University
MEDN
- Deziel, Daniel J.
M.D., U. of Minnesota
GSUR
- Di Filippo, Judith A.
M.S., St. Xavier. College
GERN
- Di Filippo, Mary E.
M.D., Loyola U. of Chgo.
MED
- Di Filippo, Nicholas
D.O., Chgo. Col. of Osteo.
MED
- Diamant, David Simon
M.D., Syracuse Univ.
PMR
- Diamond, Eugene F.
M.D., Loyola U. of Chgo.
PED
- Diamond, Terrence P.
M.D., Loyola U. of Chgo.
MED
- Dianda, Jeanne
B.S., Michigan Tech. U.
MTPT
- Diba, Louise Henrietta
M.D., Rush University
MED
- Dicostanzo, Camille
M.S., Rush University
NMAT
- Dieschbourg, Janice
M.D., Loyola U. of Chgo.
DIAG
- Diffenbaugh, Willis G.
M.D., Northwestern Univ.
GSUR
- Digianfilippo, Anthony
M.D., U. of Illinois-Chgo.
NEUS
- Dillon, Charles D.
M.D., Georgetown Univ.
MED, PVM
- Dillon, Jane T.
M.D., U. of Illinois-Chgo.
OTO
- Dillon, Paula
M.S.N., U. of Illinois-Chgo.
MEDN
- Dimiceli, Salvatore A.
M.D., Loyola U. of Chgo.
GSUR
- Dimou, Catherine Anne
M.D., Rush University
MED
- Dimuzio, Michael
Ph.D., Northwestern Univ.
BCH
- Dinsmore, Charles E.
Ph.D., Brown University
ANAT
- Dixon, Donna M.
M.S., Northern Ill. Univ.
MATN
- Djordjevic, Dragan
M.D., Rush University
MED
- Djordjevich, Ljubomir
Ph.D., Illinois Inst. of Tech.
ANES
- Djuric, Michael
M.A., Governors State U.
MTPT
- Dmowski, W. Paul
M.D., Poland
Ph.D., Med. Col. of Georgia
OBG
- Dochios, Mary
M.D., Hahnemann Univ.
PED
- Domas, Andrea Jean
M.S., Eastern Ill. Univ.
CNTR
- Dominguez, Jose M.
M.D., Univ. of Missouri
GSUR
- Domont, Lawrence A.
M.D., George Washington U.
MED
- Donnelly, Anne Marie
M.D., U. of Illinois-Chgo.
FAM
- Donner, Edward
Ph.D., Univ. of Chicago
PSYN
- Donoghue, JoAnn
D.O., Chgo. Col. of Osteo.
MED
- Doolas, Alexander
M.D., U. of Illinois-Chgo.
GSUR
- Dorman, Robert J.
D.O., Chgo. Col. of Osteo.
MED
- Dorsey, Lawrence
M.D., Northwestern Univ.
PED
- Doshi, Mayank Y.
M.B.B.S., India
MED
- Doubek, Ann A.
M.S., U. of Illinois-Chgo.
GERN
- Dougherty, Janet Kay
M.S.N., Loyola U.-New Orl'ns
SURN
- Douglas, Gilbert W.
M.D., Chgo. Medical Sch.
GSUR
- Douglas, Linda O.
M.D., Washington State U.
FAM
- Douglass, Paula
M.A., Wichita State Univ.
HSM
- Dourdourekas, Demetrio
M.D., Greece
MED
- Dowlatsbahi, Kambiz
M.B., United Kingdom
DIAG, GSUR
- Dowling, Harry F.
M.D., George Washington U.
MED
- Dowling, Rebecca A.
Ph.D., Univ. of Missouri
CNTR, HSM
- Dozier, Emanuel V.
M.D., U. of Illinois-Chgo.
MED
- Drease, Grace Evelyn
M.D., U. of Illinois-Chgo.
ANES
- Drezek, Elizabeth
M.S., Rush University
SURN
- Driscoll, Thomas P.
M.D., Loyola U. of Chgo.
PED
- Drugay, Joseph J.
M.D., John Carroll Univ.
DIAG
- Drugay, Marge
N.D., Rush University
GERN
- DuBose, Edwin Rembert
Ph.D., Rice University
RHHV
- Dubrosky-Marcon, JoAnn
M.S., Rush University
SURN
- Ducanto, James Charner
M.D., Rush University
GSUR
- Duda, Eugene E.
M.D., Loyola U. of Chgo.
DIAG
- Duda, Francis John
M.D., U. of Illinois-Chgo.
PED
- Duffy, Catherine E.
M.B.B.S., Foreign College
PED
- Dugas, Jeffrey A.
M.D., Rush University
MED

Alphabetical Faculty Listing

- Dulski, Laura A.
M.S.N., Loyola U. of Chgo.
MATN
- Dumbovic, Nives
M.D., Yugoslavia
PED
- Dunea, George
M.B.B.S., Australia
MED
- Dunn, Harold E.
M.D., St. Louis University
PLAS
- Durica, Thomas E.
Ph.D., Loyola U. of Chgo.
ANAT
- Duros-Silber, June
M.S., George Williams Col.
M.S., Rush University
GERN
- Dwarakanathan, Arcot A.
M.B.B.S., India
MED, PVM
- Dworsky, Bradley David
M.D., Rush University
ORTH
- Dwyer, William
M.D., Rush University
PATH
- Dy, Deana Lim
M.D., Philippines
IMMC, PED
- Dy, Johnson
M.D., Philippines
OBG
- Dye Jr., William S.
M.D., Northwestern Univ.
CVT
- Dyonzak, Jane V.
Ph.D., Penn. State Univ.
PSYC
- Earle, Richard H.
M.D., Chgo. Medical Sch.
MED
- Earles, Rene M.
M.D., Howard University
DERM
- Easley, Cheryl E.
D.N., New York University
CHN
- Eastman, Charmane
Ph.D., Univ. of Chicago
PSYC
- Ebeling, Jan
M.D., West Germany
FAM
- Ebell, Christine
B.S., Chicago State Univ.
OCC
- Ebenhoeh, Patrick E.
M.D., Loyola U. of Chgo.
PSY
- Ebersman, Donald S.
Ph.D., Univ. of Iowa
PHR
- Ecanow, Bernard
Ph.D., U. of Minnesota
PHR
- Eckenfels, Edward J.
Univ. of Chicago
PVM
- Economou, Peter G.
M.D., Hahnemann Univ.
MED
- Economou, Steven G.
M.D., Hahnemann Univ.
GSUR
- Edwards, John H.
M.D., U. of Wisconsin
PSY
- Eftekhari, Irandokht
M.D., Foreign College
PED
- Egel, Robert T.
M.D., Chgo. Medical Sch.
NEU, PED
- Egiebor, Osbert O.
M.B.B.S., Foreign College
PED
- Ehrlich, Jay Matthew
MED
- Eisenberg, Robert S.
Ph.D., United Kingdom
PHY
- Eisenstein, Matthew M.
M.D., U. of Illinois-Chgo.
DIAG
- Ekbali, Shahid S.
M.B.B.S., Pakistan
UROL
- El Ganzouri, Abdel R.
M.B.B.C., Egypt
F.R.C.S., United Kingdom
ANES
- Elam, Harry P.
M.D., Loyola U. of Chgo.
PED, PVM
- Elbaz, Nabil M. I.
M.D., Egypt
ANES
- Elgar, Robert D.
B.A., Drake University
MED
- Ellingsen, David Carl
M.D., St. Louis University
PATH
- Elliott, Sylvia S.
M.D., Ohio State Univ.
MED
- Elliott, Thomas F.
M.A., Col. of the Holy Cross
RHHV
- Elliott, William J.
M.D., Univ. of Chicago
Ph.D., Univ. of Chicago
PVM
- Ellis, Kenneth K.
M.D., Baylor Col. of Med.
MED
- Ellis, Lisa C.
M.D., Baylor Col. of Med.
MED
- Elpern, Ellen H.
M.S., U. of Wisconsin
MEDN
- Embar, Rama
M.B.B.S., India
PED
- Engelbrecht, Brian Paul
M.D., Rush University
UROL
- Engel, Susan L.
M.D., Chgo. Medical Sch.
PATH
- Engelberg, Alan L.
M.P.H., U. of Pittsburgh
PVM
- Epsom, Rita M.
M.S.N., Northern Illinois U.
GERN
- Epstein, Avrum J.
M.D., Chgo. Medical Sch.
DIAG
- Epstein, Phillip S.
M.D., Univ. of Chicago
PSY
- Epstein, Randy J.
M.D., Rush University
OPHT
- Erhardt, Peter
M.D., Hungary
BCH
- Ericksen, Stephen E.
M.D., Univ. of Utah
PSY
- Eriksen, Ronald G.
M.D., U. of Illinois-Chgo.
PED
- Eriksson, Joann H.
M.S., Rush University
SURN
- Ertel, John W.
M.D., Hungary
GSUR
- Ertel, James O.
M.D., Switzerland
DERM
- Erwin, James H.
M.D., U. of Alabama
PMR
- Esmond, Truman H.
M.S., U. of Illinois-Chgo.
HSM
- Espiritu, Rolando L.
M.D., Philippines
MED
- Etscheidt, Mark A.
M.A., U. of Northern Iowa
PSYC
- Evankoe, Sally A.
M.S., Rush University
MATN
- Evans-Beckman, Linda
M.D., Rush University
FAM
- Evenhouse, Henry John
M.D., Northwestern Univ.
OBG
- Ewing, Melodi Gayle
M.D., Ohio State Univ.
FAM

- Eybel, Carl E.**
M.D., U. of Illinois-Chgo.
MED
- Ezekiel-Braide, Young D.**
M.D., Meharry Medical Col.
MED
- Faber, L. Penfield**
M.D., Northwestern Univ.
CVT
- Fabrega, Francesc R.**
GSUR
- Fanelli, Joseph G.**
M.D., Chgo. Medical Sch.
PSY
- Farbstein, Samuel A.**
M.D., Chgo. Medical Sch.
MED
- Farley, Kathleen**
M.S., Rush University
MEDN
- Farran, Carol J.**
D.N.Sc., Rush University
PSYN
- Farrell, Patricia**
Ph.D., Illinois Inst. of Tech.
PSYC
- Fassbender, Hans G.**
M.D., West Germany
BCH
- Faut-Callahan, Margaret**
D.N.Sc., Rush University
SURN
- Fawcett, Jan A.**
M.D., Yale University
PSY
- Fay, Mary K.**
M.D., U. of Illinois-Chgo.
PED
- Feimer, Peter P.**
D.D.S., Loyola U. of Chgo.
GSUR
- Feingold, Michael T.**
M.D., U. of Illinois-Chgo.
OBG
- Fejes, Jolan**
M.D., Foreign College
MED
- Feldman, Bernard**
M.D., S.U.N.Y., at Buffalo
FAM
- Feldman, Paul Keith**
M.D., Rush University
FAM
- Feldmann, Theodore B.**
M.D., Univ. of Louisville
PSY
- Felix, Robert E.**
M.D., Cornell Univ.
MED
- Fell, Egbert**
M.D., Univ. of Chicago
GSUR
- Fenner, Dee Ellen**
M.D., Univ. of Missouri
OBG
- Fenner, Patrick C.**
M.D., Wayne State Univ.
MED
- Fenton-Miller, Kathy**
M.S., Rush University
CHN
- Feole, John B.**
M.D., Creighton Univ.
GSUR
- Feria, Araceli I.**
M.D., Philippines
FAM
- Ferlman, James Christopher**
M.D., U. of Illinois-Chgo.
MED
- Fernandez, Rafael**
M.D., Cuba
OBG
- Fernando, Michael B.**
M.D., Rush University
PATH
- Ferrel, James A.**
M.D., U. of Cincinnati
FAM
- Fick, Bruce D.**
M.D., U. of Illinois-Chgo.
OPHT
- Fiedler, Ruth**
M.S., Rush University
PSYN
- Figueroa, Alvaro**
D.D.S., Foreign College
PLAS, GSUR
- Figueroa, Glenn Robert**
M.D., Louisiana St. U.
PMR
- Fildes, John J.**
M.D., Foreign College
GSUR
- Fine, Martin**
M.D., Chgo. Medical Sch.
PSY
- Fink, Peter**
M.D., Johns Hopkins Univ.
PED, PSY
- Finnegan, Alison**
Ph.D., Tufts University
IMMC, MED
- Fischer, Ann**
M.D., McGill Univ.
PED
- Fischer, Neal C.**
M.D., U. of Illinois-Chgo.
MED
- Fischer, Tessa**
M.D., Georgetown Univ.
FAM
- Fisher, Kathy A.**
M.D., U. of Illinois-Chgo.
MED
- Fiske, Marian**
M.S.N., U. of Illinois-Chgo.
PSYN
- Fisli, Barbara Anne**
M.S., Rush University
MEDN
- Fister, James S.**
M.D., U. of Illinois-Chgo.
ORTH
- Fitchett, George**
D.Min., Univ. of Chicago
RHHV
- Fitzpatrick, Joyce**
M.S., Purdue University
RHHV
- Fitzsimmons, William E.**
Ph.D., Va. Commonw'lth U.
PHR
- Flacco, Richard M.**
M.D., Hahnemann Univ.
FAM
- Flanagan, Malachi J.**
M.D., Loyola U. of Chgo.
UROL
- Flanagan, Thomas**
M.D., U. of Michigan
MED
- Flanigan, Robert M.**
M.D., Marquette Univ.
GSUR
- Flechtermacher, Johannes**
B.S., Foreign College
BCH, ORTH
- Fleming, Matthew G.**
M.D., S.U.N.Y. Downstate
DERM, PATH
- Fliegelman, Robert**
D.O., Phila. Col. of Osteo.
MED
- Flimlin, Mary T.**
M.D., Chgo. Medical Sch.
PMR
- Flint, Sharon Thomas**
M.D., Rush University
PED
- Flood, Timothy P.**
M.D., U.C.L.A.
OPHT
- Flores, Esperanza**
M.D., U. of Minnesota
FAM
- Floro, Lourdes Dimaano**
M.D., Philippines
PED
- Flosi, Sam F.**
D.O., Chgo. Col. of Osteo.
OBG
- Floyd, Gail Y.**
M.D., Tufts University
FAM
- Flynn Jr, John F.**
M.D., Northwestern Univ.
ORTH
- Forbes, Janet Y.**
M.D., U. of Illinois-Chgo.
MED
- Forchetti, Concetta M.**
M.D., Italy
NEU
- Ford, Erica W.**
M.B.Ch., United Kingdom
ANES
- Fordham, Ernest W.**
M.D., U. of Illinois-Chgo.
DIAG

Alphabetical Faculty Listing

- Foreman, Syd
D.O., Chgo. Col. of Osteo.
PED
- Forgue, Ruth
M.S., Rush University
HSM
- Forsell, Bjron E.
M.D., Foreign College
FAM
- Forster, Cornelius A.
M.S., Univ. of Dayton
MTPT
- Foster, Dale
M.D., Rush University
MED
- Foster, Preston F.
M.D., Univ. of Texas
GSUR
- Foth, Richard P.
M.D., Northwestern Univ.
MED
- Fox, Jacob H.
M.D., U. of Illinois-Chgo.
MED, NEU
- Franco, Joseph Anthony
M.D., Loyola U. of Chgo.
GSUR
- Frank, Angela
M.D., Brazil
GSUR
- Frank, Minnie
M.D., U. of Wisconsin
PED
- Frankenbach, James T.
M.B.A., Loyola U. of Chgo.
HSM
- Frankle, Robert M.
M.D., Medl. Col. of Ohio
MED
- Franklin, James L.
M.D., Northwestern Univ.
MED
- Frauenheim, William
M.D., Univ. of Michigan
MED
- Fredland, Allan J.
M.D., Chgo. Medical Sch.
GSUR
- Fredrick, Earl
M.D., Howard University
MED
- Freed, Marc A.
D.O., Phila. Col. of Osteo.
PED
- Freedman, Philip
M.D., United Kingdom
MED
- Fregia, Adrienne L.
M.D., U. of Illinois-Chgo.
MED
- Freilich, Bradley, L.
M.D., Univ. of Missouri
MED
- Freimanis, Maija
M.D., Yale University
DIAG
- Frey, George A.
M.D., Georgetown Univ.
ORTH
- Fried, Peter O.
M.D., U. of Illinois-Chgo.
FAM
- Fried, Walter
M.D., Univ. of Chicago
MED
- Friedberg, Stanton A.
M.D., Rush University
OTO
- Friedman, Michael L.
M.D., U. of Illinois-Chgo.
OTO
- Friedrichs, Judy
M.S., Rush University
MATN
- Friestad, Wayne S.
M.D., Loma Linda Univ.
FAM
- Frischer, Henri
M.D., Dominican Republic
Ph.D., Univ. of Chicago
MED, PHR
- Froiland, John Lee
M.D., Northwestern Univ.
FAM
- Fruth, Roberta
M.S., Rush University
MEDN
- Frye, Elizabeth B.
B.A., U. of North Carolina
MED
- Frymark, William B.
M.D., Marquette Univ.
GSUR
- Fugali, Valeria F.
M.D., U. of Illinois-Chgo.
PED
- Fusaro, Aldo
D.O., U. of Osteo. Med
PATH
- Fusco, Arthur Arnaldo
M.D., Geo. Washington U.
GSUR
- Gable, Leslie
B.S., U. of Michigan
PSY
- Gabrielli, John D.
B.A., Yale University
NEU
- Gaddie-Cariola, Ann
M.S., U. of Wisconsin
OTO
- Galanes, Susan E.
M.S., Rush University
SURN
- Galante, Jorge O.
M.D., Argentina
D.M.Sc., Sweden
ANAT, ORTH
- Galbraith, William
MA United Kingdom
MED
- Galica, Antonina
M.D., Foreign College
PED
- Galinsky, Dennis L.
M.D., Iowa State Univ.
THER
- Gallagher, Diane M.
M.S., Rush University
MATN
- Gallo, Linda K.
M.D., Rush University
PED
- Galt, Raymond M.
M.D., Northwestern Univ.
MED
- Galvez, Carmencita
M.D., Philippines
OBG
- Gamburg, Boris
M.D., Soviet Union
PED
- Ganger, Daniel R.
M.D., Foreign College
MED
- Gantner, Cathie A.
M.D., U. of Wisconsin
MED
- Ganz, Mary L.
D.O., Texas Col. of Osteo.
PED
- Garber, Sheldon
B.A., U. of Minn. Duluth
HSM
- Garcia, Joanne S.
M.S., Northern Ill. Univ.
MEDN
- Garellick, David H.
ORTH
MED
- Garla, Renukadevi P.
M.B.B.S., India
PED
- Garr, William R.
M.D., Rush University
MED
- Garretson, Bruce R.
M.D., Wayne State Univ.
OPHT
- Garron, David C.
Ph.D., Univ. of Chicago
PSYC
- Garst, Jeffrey R.
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ORTH
- Garvey, Peggy
M.A., Univ. of Iowa
NMAT
- Garvin, John S.
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PSY
- Gasbarra, Gary Michael
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HSM
- Gaseor, Cheryl Lynn
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CDB, OTO
- Gasteyer, Theodore
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MED

- Gates, Dennis J.
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ORTH
- Gavani, Uma Devi
M.B.B.S., India
PED
- Gavron, Joseph P.
M.D., Northwestern Univ.
OTO
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M.D., Belgium
PED
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Ph.C., U. of Illinois-Chgo.
MED, PHR
- Gebel, Howard M.
Ph.D., Univ. of Missouri
IMMC, GSUR
- Gehlmann, Louisa M.
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DERM
- Geiger, Mildred L.
M.D., Ohio State Univ.
FAM
- Geis, Alice
M.S., U. of Illinois-Chgo.
PSYN
- Geismar, Deborah
M.D., Harvard University
FAM
- Geittmann, William F.
M.D., Northwestern Univ.
OBG
- Gelman, Clifford Lee
M.D., Rush University
GSUR
- Georgis, Margaret S.
M.B., Iraq
PED
- Geremia, Glen K.
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DIAG
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PED
- Gerstad, Nancy Anne
M.D., U. of Michigan-
MED
- Gerty, Francis J.
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PSY
- Gertzen, Joyce
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IMMC, MED
- Ghaey, Kamala A.
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PED
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MED
- Ghosh, Geeti
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PED
- Gianino, Janet Magolan
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SURN
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NEUS
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M.D., J.D., U. of Illinois-Chgo.
PATH
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PATH
- Gibson, Lewis E.
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PED
- Gierl, Benedict L.
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PSY
- Gigante, Joseph D.
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FAM
- Gilchrist, R. Kennedy
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GSUR
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PSYC
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FAM
- Gilman, Alan D.
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MED
- Gilmer, William
M.D., Univ. of Iowa
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- Gilroy Jr., Philip W.
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DIAG
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PED
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DAM
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ORTH
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ORTH
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ORTH
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MED, PHY
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PED
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HSM, PSYC, PVM
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- Glass, Michele
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PSYC
- Glick, Melvin
M.D., Mexico
FAM
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SURN
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MED
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D.Ch., India
PED
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NEU, PHR
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FAM
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M.S.N., Loyola U. of Chgo.
GERN
- Gokhale, Sudhir M.
M.B.B.S., India
PSY
- Golchini Shafa, Mehdi
M.D., Iran
PSY
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PLAS, GSUR
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PATH
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MED
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- Gomez, Diane R.
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SURN
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PSYC
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- Gould, Victor E.
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OBG
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HSM
- Graefen, Thomas Alan
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ORTH
- Graettinger, John S.
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- Graf, Linda
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CDS
- Grant, Evalyn Nancy
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PED
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FAM
- Green, Alexander A.
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- Greenlee, William McCathran
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DIAG
- Gregory, Stephanie A.
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- Griem, Katherine L.
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THER
- Griffin, Angela J.
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MED
- Griffin, Jason Douglas
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MED
- Griffiths, Stephanie
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OBG
- Grinblat, Enrique
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- Grinblatt, Jeffrey A.
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- Grobman, Mitchell S.
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- Gross, Deborah A.
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PED
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RHHV

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PSY

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MED

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PED

Harris, Jules E.
M.D., Univ. of Toronto
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Harris, Max L.
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Harris, Michael
Ph.D., U. of Kansas
BCH, OCC

Harris, Thomas V.
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MED

Harrison, Barbara B.
M.B., U. of South Carolina
MTPT

Harrison, William H.
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BCH, NEU

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GSUR

Harter, Phillip M.
M.D., Chgo. Medical Sch.
FAM

Hartman, Edith
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PSY

Hartmann, J. Francis
Ph.D., Cornell Univ.
NEU

Hartsell, William
M.D., U. of Oklahoma
THER

Harvey, Richard F.
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PMR

Harwood, Robert
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FAM

Hascall, Vincent C.
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BCH

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NEU

Hashem, Waddah J.
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PED

Hass, George
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PATH

Hasta, Fakhruddin
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M.D., U. of Illinois-Chgo.
FAM
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SUR
- Hauck, Lynnette J.
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NCH
- Hauselmann, Hans Jorg
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BCH
- Haut, Allyson, E.
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PSYC
- Hayashi, James A.
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BCH
- Hayden, William R.
M.D., Northwestern Univ.
PED
- Hayes, Mary E.
M.S., Rush University
MATN
- Hayes, Mary J.
D.D.S., U. of Illinois-Chgo.
GSUR
- Haynes, Barbara
Ph.D., Univ. of Pittsburgh
MEDN
- Haynes, Joan
M.D., Rush University
PSY
- Hays, Mir Miller
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CHN
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B.A., Middlebury College
MED
- Heck, Robert S.
M.D., Northwestern Univ.
FAM
- Heckel, V. Eileen
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ANES
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M.D., Cornell Univ.
MED
- Hedblom Jr, Carl A.
M.D., Harvard University
MED
- Heil, Nancy Jo
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PED
- Heiliczzer, Jonathan D.
B.A., U. of Louisville
PED
- Heim, John A.
B.S., Ramapo C. of NJ
CVT
- Heiman, Harry Jay
M.D., U. of Cincinnati
FAM
- Heit, Michael
M.D., S.U.N.Y. at Binghamton
OBG
- Hejna, William F.
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HSM, ORTH
- Heller, Floyd N.
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- Hendler, Samuel
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FAM
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M.D., Thomas Jefferson U.
MPH, THER
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MED, PED
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ORTH
- Hennessy, Joseph J.
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MED
- Henrikson, Glenn C.
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DIAG
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NEU
- Heredia, Raul
B.S., Mexico
PATH
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- Hertz, Brian
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- Herwick, Paul Q.
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OBG
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M.S., Southern Ill. Univ.
CDS
- Hill, James P.
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HSM
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M.D., Bolivia
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PSY
- Hirsch, Arthur F.
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FAM
- Hirsch, Daniel J.
M.D., Stanford Univ.
MED
- Hirsch, Debra A.
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SURN
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OBG
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UROL
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ORTH

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BCH

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ANES

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M.B., Iraq
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Hyman, Bruce David
M.D., Rush University
MED

Ibrahim, Zaki George
M.D., U. of Minn.-Morris
ORTH

Ichniowski, Richard F.
M.D., Loyola U. of Chgo.
OBG

Ilbawi, Michel N.
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CVT

Imperial Hizon, A.
M.D., Philippines
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Inchul, Lee
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PATH

Ipema, Donna K.
Ph.D., U. of Illinois-Chgo.
PSYN

Isern, Maria T.
M.D., Southwestern Univ.
MED

Israel, Jeannette
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PED

Itkonen, Jerry J.
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MED

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ANES

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M.D., Yugoslavia
FAM
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M.D., Univ. of Iowa
PSY
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PED
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BCH, MED
- Jablon, Michael
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ORTH
- Jacker, Michael H.
M.D., Case Western Res. U.
ORTH
- Jackson, Cheryl L.
M.D., U. of Pennsylvania
PED
- Jackson, Karen A.
M.D., U. of Illinois-Chgo.
MED
- Jacob, Susan K.
Ph.D., Loyola U. of Chgo.
ANAT
- Jacobi, Angela
M.N., U. of Pittsburgh
MATN
- Jacobs, Christine K
M.D., Vanderbilt Univ.
FAM
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ORTH
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PED
- Jaffe, Charles M.
M.D., Univ. of Maryland
PSY
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DIAG
- Jagmin, Marianne
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SURN
- Jagodzinski, Benjamin
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OBG
- Jaharis, Steven M.
M.D., Tufts University
FAM
- Jaimovich, David G.
M.D., Foreign College
PED
- Jakate, Shriram M.
M.B.B.S., India
PATH
- James, Norman M.
M.D., Cornell Univ.
MED
- Jamieson, Donna
M.S., U. of Illinois-Chgo.
MEDN
- Jamieson, Rodney A.
M.D., Northwestern Univ.
MED
- Jamison, Dianne
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CHN
- Jankowski, Mary Ellen
M.S., Northern Illinois U.
NMED
- Jansen, Carol-Lynn
MBA, Loyola U. of Chgo.
HSM
- Jansen, Noel L.
M.D., U. of Southern Ind.
MED
- Janus, Linda M.
M.D., Loyola U. of Chgo.
OBG
- Jaojaroenkul, Thiti
M.D., Thailand
MED
- Jarmoszuk, Irene
M.D., U. of Med/Dent of N. J.
IMMC
- Jaros, Mark L.
B.S., Univ of Nebraska
MTPT
- Jarrett, William R.
M.D., U. of Illinois-Chgo.
OBG
- Javaid, Javaid I.
Ph.D., S.U.N.Y. at Buffalo
PHR
- Javid, Hushang
M.D., Ph.D., U. of Ill.-Chgo.
CVT
- Jaworski, Stanley D.
M.B.A., Northeastern U.
HSM
- Jeffery, Rosemarie M.
M.D., Wayne State Univ.
MED
- Jellinek, Leslie A.
M.A., U. of Michigan
M.S., Rush University
HSM
- Jelsma, Peter Franklin
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MED
- Jendro, Thomas A.
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HSM
- Jenkins, Amy B.
MED
- Jenkins, Lee Thomas
M.D., U. of Illinois-Chgo.
GSUR
- Jennings, Terese
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PED
- Jensen, Donald M.
M.D., U. of Illinois-Chgo.
MED
- Jensen, Judd M.
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NEU
- Jensik, Robert J.
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CVT
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GSUR
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PED
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Ph.D., Univ. of Calgary
MPH, THER
- Jeyendran, Rajasingam
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OBG
- Jiron, Arnoldo J.
M.D., Foreign College
PSY
- John, Robert B.
D.D.S., U. of Illinois-Chgo.
GSUR
- Johnson, Beth L.
M.D., U. of Minnesota
PATH
- Johnson, Bruce C.
M.D., Chgo. Medical Sch.
PSY
- Johnson, Frank R.
M.D., Northwestern Univ.
PED, GSUR
- Johnson, Gene Elvin
M.D., Indiana Univ.
FAM
- Johnson, Kathleen H.
M.D., Rush University
PSY
- Johnson, Margery R.
M.D., George Washington U.
PSY
- Johnson, Marilyn A.
Ph.D., U. of Pennsylvania
PSYC
- Johnson, Mary E
M.S., U. of Illinois-Chgo.
PSYN
- Johnson, Paul
Ph.D., U. of Illinois-Chgo.
PSYC
- Johnson, William A.
M.D., Univ. of Chicago
MED
- Jokich, Michael D.
M.D., U. of Illinois-Chgo.
DIAG
- Jokich, Peter M.
M.D., U. of Illinois-Chgo.
DIAG
- Jones, Ann Marie
M.S., Rush University
DIAG
- Jones, Carmen Felice
M.D., U. of Ill.-Cham/Urb.
PED
- Jones, Elizabeth C.
M.D., Tulane Univ.
PED

- Jones, Frank A. D.**
M.D., Italy
PSY
- Jones, Frank W.**
M.D., Northwestern Univ.
MED
- Jones, Jerry Lynne**
MPH, U. of Illinois-Chgo.
MED
- Jones, Paul J.**
M.D., Rush University
OTO
- Jones, Philip N.**
M.D., Washington Univ.
MED
- Jordan Jr, James V.**
M.D., Loyola U. of Chgo.
MED
- Jordan, Robert A.**
M.D., Rush University
PED
- Joyce, Cathy Lynn A.**
M.D., Chgo. Medical Sch.
PED
- Jung, Eduard**
M.D., West Germany
PED
- Jurek, Bozena B.**
M.D., Foreign College
FAM
- Kaatz, Gary E.**
M.B.A., Univ of Chicago
HSM
- Kacey, Daniel**
M.D., Loyola U. of Chgo.
GSUR
- Kachoris, Paul J.**
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- Kadowaki, Mark H.**
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FAM
- Kaegi, Charles E.**
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PSY
- Kaganiec, Irene G.**
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MED
- Kaiser, James A.**
C.P. Northwestern Univ.
PMR
- Kaizer, Herbert**
M.D., Stanford Univ.
Ph.D., Boston University
IMMC, MED, PED
- Kakodkar, Vasundhara**
M.B.B.S., India
PED
- Kale, Alka**
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OBG
- Kale, Scott A.**
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MED
- Kaliana, Muthukumaran**
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PED
- Kalimuthu, Ramasamy**
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PLAS
- Kalis, John B.**
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- Kallick, Charles**
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PED
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OBG
- Kaminski, Ludwig**
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MED
- Kaminsky, Alexander Mark**
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PED
- Kammel, Rogina**
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PED
- Kanaris, Mark**
M.D., Greece
FAM
- Kang, David S.**
Ph.D., South Korea
PED
- Kann, Jeffrey Neal**
M.D., Univ. of Pittsburg
ORTH
- Kannan, Chakravarthy**
M.D., Indonesia
MED
- Kanner, Andres M.**
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NEU
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CNTR
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B.S., U. of Illinois-Chgo.
HSM
- Kao, Mark**
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MPH
- Kaplan, Edward H.**
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MED
- Kaplan, Sidney**
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DERM
- Kapoor, Febe Deepak**
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PSYN
- Kapral, Jane**
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PED
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GSUR
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OTO
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B.S., Central Michigan U.
MED
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MED, PSY
- Karson, Tom Harry**
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MED
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MPH, THER
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HSM
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MED, PVM
- Kasturi, Vijay Kumar**
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MED
- Katz, Jerome I.**
M.D., U. of Illinois-Chgo.
PSY
- Katz, Robert S.**
M.D., Univ. of Maryland
MED
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PVM
- Kaushal, Satya P.**
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ORTH
- Kavinsky, Clifford Jay**
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MED
- Kawauchi, Ronald H.**
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MED
- Kaye, Bennett A.**
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PED
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PED
- Kazaniwskyj, Lubomyra**
D.O., Chgo. Col. of Osteo.
FAM
- Kazlauska, Theresa**
M.D., U. of Illinois-Chgo.
PED
- Keane, Donal M.**
M.D., Ireland
ANES
- Keane, John T.**
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DERM, PATH
- Keenan, Ann Marie**
M.S., Rush University
MEDN
- Keers, Suzanne**
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HSM

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M.D., Texas Tech. Univ.
OBG
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ANES
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M.D., Loyola U. of Chgo.
MED
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M.D., Texas Tech. Univ.
OBG
- Keith, L.E.
M.D., Harvard University
PED
- Keithley, Joyce
D.N.Sc. Rush University
SURN
- Kelleher, Leon R.
D.D.S., U. of Illinois-Chgo.
GSUR
- Kelly, Charmayne A.
B.A., Lake Forest College
THER
- Kelly, Coleen
M.S., Xavier University
HSM
- Kelly Jr, Frank B.
M.D., Univ. of Chicago
MED
- Kelly, Frank C.
M.D., Chgo. Medical Sch.
MED
- Kelly, Jonathan
M.D., S.U.N.Y. Upstate
PSY
- Kelly, Maureen P.
M.D., Hahnemann Univ.
OBG
- Kelly, Michael A.
M.D., Loyola U. of Chgo.
NEU
- Kelsey, John G.
M.D., Ohio State Univ.
MED
- Kemp, Mildred G.
Ph.D., U. of Michigan
SURN
- Kendra, Dorothy
M.S., De Paul Univ.
GERN
- Kendrick, Alfred E.
M.D., U. of Illinois-Chgo.
PED
- Kennedy, Harold L.
M.D., Univ. of Missouri
MED
- Kennelly, Christine
M.S., Georgia State Univ.
MATN
- Kent, Jeffrey David
M.D., Jefferson College
MED
- Kenton, Lorry
M.S.N., Univ. of Colorado
GERN
- Kerchberger, John P.
M.D., Univ. of Chicago
ANES
- Kerns, James M.
Ph.D., Purdue Univ.
ANAT
- Kessel, Kenneth F.
M.D., U. of Illinois-Chgo.
FAM
- Kessler, Harold A.
M.D., Rush University
IMMC, MED
- Kezmoh, Michael Paul
B.A., U. of Notre Dame
OBG
- Khan, Saeed
M.B.B.S., Pakistan
MED
- Khodadad, Jena
Ph.D., Northwestern Univ.
ANAT, PATH
- Khurana, C. Mohini
M.B.B.S., India
PED
- Khurana, Saroj
M.B.B.S., India
PED
- Kijek, Barbara G.
M.D., Poland
PED
- Kilburg, Susan
M.S., Rush University
HSM, OBG
- Kiley, Philip James
M.D., Rush University
MED
- Kiley, R. James
M.D., Loyola U. of Chgo.
PED
- Kilian, Jane T.
Ph.D., Loyola U. of Chgo.
MATN
- Killingsworth, Deborah
B.S., De Paul Univ.
MED, MTPT
- Kim, Jerry Yonguk
M.D., Northwestern Univ.
ANES
- Kim, Joo Woo
M.D., Foreign College
MED
- Kim, Ju Hyun
M.D., South Korea
PED
- Kim, Tae Woo
M.D., Foreign College
DIAG
- Kimura, James H.
Ph.D., Case Western Res. U.
BCH
- Kimura, Robert E.
M.D., Case Western Res. U.
PED
- Kincaid, Phyllis
M.S., De Paul Univ.
MEDN
- Kind, Gabriel M.
M.D., Northwestern Univ.
GSUR
- Kindrachuk, William
M.D., Univ. of Toronto
PED
- King, Donald G.
B.S., Purdue Univ.
GSUR.
- King, J. Theodore
M.D., Indiana Univ.
FAM
- King, Jeffrey M.
M.D., S.U.N.Y. Upstate
OTO
- King, Jerry N.
M.D., Indiana Univ.
CVT
- Kingsbury, Nancy
M.S., Rush University
CDS
- Kinn, Robert M.
M.D., U. Illinois-Chgo.
MED
- Kinney, Janet
M.D., Northwestern Univ.
MED
- Kintanar, Felismeno
M.D., Philippines
PED
- Kirk, Harold Q.
M.D., Northwestern Univ.
OPHT
- Kirk, Jennifer Kirsten
M.D., Univ. of Michigan
SUR
- Kirkland, Wallace W.
M.D., Northwestern Univ.
MED
- Kirrin, Alex J.
M.D., Belgium
PED
- Kirschner, Carolyn V.
M.D., U. of Ill.-Cham/Urb
OBG
- Kirz, Donna S.
M.D., U. of Washington
OBG
- Kisling, Gregory Michael
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DIAG
- Kissane, Kevin
M.S., Rush University
MEDN
- Kittle, C. Frederick
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CVT
- Kittredge, Diane J.
B.S.N., Duquesne Univ.
MEDN
- Klawans, Harold
M.D., U. of Illinois-Chgo.
NEU, PHR
- Klein, Joel S.
M.D., Chgo. Medical Sch.
MED

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M.D., Rush University
GSUR
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M.D., U. of Illinois-Chgo.
FAM
- Klingel-Smith, Mary**
M.S., U. of Illinois-Chgo.
MEDN
- Klinger, Alfred D.**
M.D., U. of Illinois-Chgo.
MED, PVM
- Klodd, David A.**
Ph.D., Bowling Green St. U.
CDS, OTO, PED
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MEDN
- Klor, Barry M.**
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CDS
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M.D., Harvard University
PSY
- Kluiber, Rudolph M.**
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GSUR
- Kluskens, Larry F.**
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PATH
- Kmicikewycz, Alexander**
M.D., Chgo. Medical Sch.
MED
- Knepper, Greg**
M.S., Ohio State Univ.
HSM
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PSY
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MED
- Knipmeyer, Jay W.**
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OBG
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MED
- Knott Jr, A. Paul**
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MED
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FAM
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BCH, PATH
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GSUR
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SURN
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PED
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PED
- Kolender, Brian Joseph**
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MED
- Kominsky, Perrie**
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CDS
- Konior, Raymond J.**
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OTO
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MED
- Kopp, Paula Lamm**
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MEDN
- Kopytko, Edwin E.**
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PSYN
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MED
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BCH, MED
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OBG
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MED
- Koukoulis, George**
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PATH
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HSM
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PSY
- Kral, Madonna**
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DIAG
- Kralj, Alojz R**
D.Sc., Yugoslavia
NEUS
- Kramer, Jane E.**
M.D., Northwestern Univ.
PED
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THER
- Krasnow, Sheldon E.**
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MED
- Krause, Philip B.**
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MED
- Kravitz, Howard**
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PSY, PSYC
- Krawczyk, John G.**
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- Kreiter, Mary L.**
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PED
- Kreplick, Lance Weston**
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FAM
- Kroger, Elliott**
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MED
- Krohm, Carol**
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FAM
- Kroin, Jeffrey S.**
Ph.D., U.C.L.A.
NEUS, PHY
- Kruckmeyer, Warren G.**
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- Krueger, Barbara L.**
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GSUR
- Kucich, Vincent**
M.D., S.U.N.Y. Downstate
CVT
- Kudelka, Anne Marie**
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- Kuehn, Julianne M.**
M.S., Natl. Col. of Educ.
HSM
- Kuettner, Klaus E.**
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BCH, ORTH
- Kull, Laura**
M.S., Rush University
SURN
- Kumar, Aparna**
M.D., Foreign College
PED
- Kummerer, Robert G**
B.S., Marquette University
GSUR
- Kunst, Ann E.**
M.S., St. Xavier College
CHN
- Kuo, Ken Nan**
M.D., Taiwan
ORTH
- Kures, Peter Rodney**
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MED
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IMMC

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M.D., U. of Illinois-Chgo.
PLAS
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PSYN
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ANAT, OPHT, PATH
- Kut, Joseph L.
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PSY
- Kuyzin, Lanis L.
M.D., Northwestern Univ.
MED
- Kuznetsky, Kenneth A.
M.D., Rush University
MED
- Kuznetsova, Marina
Ph.D., Foreign College
THER
- Kwan, Sau-Ping
M.D., Ph.D., U. of Cincinnati
IMMC
- Kwiecinsky, Michael
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MED
- Kwon, Susan O.
M.D., Univ. of Rochester
MED
- Labanauskas, Ignas
M.D., U. of Illinois-Chgo.
ORTH
- Labriola, Rose
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SURN
- Lach, Rose M.
Ph.D., U. of Illinois-Chgo.
MEDN
- Ladd, Lori Ann
M.S., Univ. of Missouri
MEDN
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PSYN
- Lafferty, Linda
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CNTR
- Lafollette, Suzanne
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MED
- Lai, Joseph C.
M.B., Taiwan
ANES
- Lai, Esther Wing Yee
M.B.B.S., Foreign College
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M.D., Taiwan
PED
- Lai, Tai Min
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ANES
- Lam, Ing-Ing
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- Lamb, Karen
M.S., Rush University
GERN
- Lambert, Michael J.
M.D., Creighton Univ.
FAM
- Lambur, James A. K.
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ORTH
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PED
- Lance, Nancy J.
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MED
- Landau, William
Ph.D., U. of Pennsylvania
IMMC
- Landay, Alan
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IMMC, MED, MTPT, PATH
- Lane, Harold J.
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PSY
- Lang, Gordon
M.D., S.U.N.Y. at Buffalo
MED
- Lang-Carney, Mary
M.D., Chgo. Medical Sch.
FAM
- Lang, Gordon
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MED
- Lange, Yvonne
Ph.D., United Kingdom
BCH, PATH
- Langsley, Pauline R.
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PSY
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PSYC
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FAM
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OBG
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MEDN
- Larson, Wendy Leigh
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- Lau, Kevin Yui
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ANES
- Lauder, Winifred
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SURN
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MED
- Lauer, Mary K.
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SURN
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ORTH
- Lawin, Penny Jo
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ORTH
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SURN
- Lawson, Clyde
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OBG
- Lawson, Leonard J.
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OBG
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- Lazar, Daniel Scott
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- Lazarus, Lawrence W.
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GERN
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M.D., U. of Illinois-Chgo.
OBG
- Lee Chuy, Ismael
M.D., Philippines
PSY

- Leff, Joel R.
M.D., U. of Illinois-Chgo.
PSY
- Leiken, Jerrold
M.D., Chgo. Medical Sch.
MED
- Leipzig, Gregory James
M.D., Rush University
ANES
- Leksas, Linda
Ph.D., U. of Illinois-Chgo.
PVM
- Lemberger, Terrence
M.D., U. of Illinois-Chgo.
FAM
- Lemons, James A.
M.D., Northwestern Univ.
GSUR
- Lenting, Eric L.
M.D., Univ. of Chicago
UROL
- Lenz, Mary Ellen
M.S., Univ. of Kansas
BCH
- Leon-Jauregui, Dulces
M.D., Rush University
FAM
- Lepper, Mark H.
M.D., George Washington U.
HSM, MED, PVM
- Lerner, Wayne M.
D.P.H., U. of Michigan
HSM
- Leslie, William T.
M.D., Univ. of Oregon
MED
- Lessick, Mira
Ph.D., Univ. of Texas
MATN
- Lessin, Bary D.
M.D., U. of Wisconsin
Diag
- Lettieri-Marks, Donna
M.S., U. of Illinois-Chgo.
PSYN
- Leurgans, Sue
Ph.D., Stanford University
PVM
- Lev, Maurice
M.D., Creighton University
MED, PATH, PED
- Leven, Robert M.
Ph.D., U. of Pennsylvania
ANAT, MED
- Levenberg, Pat
M.S., Univ. of Colorado
MATN
- Levin, Daniel Eric
M.D., Rush University
PSY
- Levin, Debra Frances
M.S., U. of Wisconsin
M.S., Rush University
SURN
- Levin, Joel M.
M.D., U. of Illinois-Chgo.
MED
- Levin, Michael I.
M.D., Washington University
MED
- Levin, Rachel Kwartowski
M.D., Rush University
PED
- Levin, Robert D.
M.D., Univ. of Chicago
MED
- Levin, Robert M.
M.D., Univ. of Missouri
PED
- Levin, Stuart
M.D., U. of Illinois-Chgo.
IMMC, MED, PVM
- Levine, Laurence Adan
M.D., Univ. of Colorado
UROL
- Levine, Milton D.
M.D., Sc.D., Johns Hopkins U.
PVM
- Levine, Stanley R.
M.D., Tulane University
UROL
- Levis, Richard A.
Ph.D., U.C.L.A.
PHY
- Levitan, Kenneth M.
M.D., U. of Illinois-Chgo.
PSY
- Levitan, Ruven
M.D., Israel
MED
- Levitt, Leonard
M.D., Rush University
DERM
- Levitt, Leroy
M.D., Chgo. Medical Sch.
PSY
- Levy, Howard B.
M.D., U. of Illinois-Chgo.
PED
- Levy, Jerre
Ph.D., Calif. Inst. of Tech.
PED
- Levy, Richard A.
M.D., Univ. of New Orleans
MED, PED
- Lewandowski, Robert
M.S., Loyola U. of Chgo.
HSM
- Lewicky, Andrew O.
M.D., Northwestern Univ.
OPHT
- Lewis, Edmund J.
M.D., U. of British Columbia
IMMC, MED
- Lewis, Mary
M.D., U. of Illinois-Chgo.
PED
- Lewis, Steven L.
M.D., Stanford Univ.
NEU
- Lewison, Gary R.
M.D., Chgo. Medical Sch.
MED
- Liao, Thomas E.
M.D., Rush University
MED
- Libert, Samuel A.
M.D., Chgo. Medical Sch.
PSY
- Libke, Mathew J
M.D., Indiana University
SUR
- Liebson, Philip R.
M.D., S.U.N.Y. Downstate
MED, PVM
- Lim, Diosdado
M.D., Philippines
PED
- Limp, Charles
M.D., U. of Illinois-Chgo.
PED
- Limperis, Chris E.
J.D., U. of Michigan
HSM
- Lin, Sun Kuang
M.D., Taiwan
PED
- Lin, Yuan-Hwai
M.D., Taiwan
ANES
- Lincoln, Sarah T.
M.D., Rush University
MED
- Lindgren, Robert
M.D., Rush University
OBG
- Lindholm, Karin
D.O., Chgo. Col. Osteo.
NEU
- Linnerud, Patricia
MSN, Northern Illinois U.
GERN
- Lint, Thomas F.
Ph.D., Tulane University
IMMC
- Lipkin, Julie
M.D., Italy
FAM
- Lipov, Eugene G.
M.D., Northwestern Univ.
ANES
- Lipson, Sally
M.S., Rush University
CNTR
- Lipton, Meryl E.
M.D., Med. Col. of Wisconsin
PED
- Lisberg, Edward E.
M.D., Rush University
MED
- Litowitz, Bonnie E.
Ph.D., Northwestern Univ.
PSY
- Llanes, Antonieta G.
B.S., Foreign College
CNTR
- Llewellyn, Jane
D.N.Sc., Rush University
SURN

Alphabetical Faculty Listing

- Llewellyn, John W.
Ph.D., Univ. of Chicago
PVM, RHHV
- Lloyd, Stephen R.
M.A., U. of Illinois-Chgo.
PSYC
- Lobstein, Otto E.
Ph.D., Northwestern Univ.
BCH
- Locke, Susan
M.D., Washington Univ.
FAM
- Lockhart, Cynthia Lynn
B.S., U. of Ill.-Cham/Urb.
CNTR
- Loeff, Deborah S.
M.D., Rush University
GSUR
- Loew, Jerome
B.A., Pennsylvania State U.
PATH
- Loew, Joshua F.
B.S., U. of Illinois-Cham/Urb
MED
- Lofgren, Katharine A.
M.S.W., U. of Illinois-Chgo.
FAM, PSY, PSYC
- Logan, Robbie Elizabeth
M.D., U. of Chgo
PMR
- Loghman-Adham, Mahmoud
M.D., France
PED
- Loh, Wai-Tak
M.D., U. of Illinois-Chgo.
ANES
- Lokos, Constance
M.S., Rush University
GERN
- London, Ruth
M.D., Israel
PED
- Long, John S
M.D., U. of Illinois-Chgo.
OBG
- Longinotti, Cheryl S.
Ph.D., Loyola U. of Chgo.
CDS
- Lopez, Carolyn C.
M.D., U. of Illinois-Chgo.
FAM
- Lopez, Marco A.
M.D., Cuba
FAM
- Lopez, Martita
Ph.D., Syracuse University
PSYC
- Lopez, Octavio M.
B.S., Loyola U. of Chgo.
MED
- Lopez, Peter Putters
M.D., U. of Illinois-Chgo.
FAM
- Lord, Richard W.
B.A., U. of No. Carolina
FAM
- Loughran, Sarah Page
M.B.A., U. of Michigan
HSM
- Lourie, Lois A.
M.H.S.A., U. of Michigan
HSM
- Lubenow, Timothy R.
B.S., U. of Wisconsin -Milw.
ANES
- Lubicky, John Peter
M.D., Thomas Jefferson U.
ORTH
- Lucero, Marisha A.
M.D., Foreign College
PED
- Luehrs, Susan M.
M.S., Rush University
MEDN
- Lukancic, Steven P.
M.D., U. of Illinois-Cham/Urb
DIAG
- Luke, Barbara
New York University
OBG, PVM
- Luken, Julie A.
M.D., U. of Illinois-Chgo.
PED
- Lukens, Abbie R.
M.D., Univ. of Chicago
PED
- Lum, Hazel
PHR
- Lunde, Mark
M.D., U. of Illinois-Chgo.
OPHT
- Lurie, Jordan I.
M.D., U. of Illinois-Chgo.
ANES
- Lusk, Peggy
M.A., Syracuse Univ.
PSYN
- Luskin, Allan T.
M.D., U. of Illinois-Chgo.
IMMC, MED
- Lutkus, Edward R.
M.D., Loyola U. of Chgo.
FAM
- Lynch, Priscilla
M.S., St. Xavier Col.
PSYN
- Lyon, Susan T.
M.D., Rush University
OTO
- Lynn, Kelvin G.
Ph.D., University of Utah
PHY
- Ma, Jian Jie
Ph.D., Baylor Col. of Med.
PHY
- MacDorman-Sedlazeck, Susan
M.B.A., U. of Virginia
HSM
- MacEntee, Peter F.
M.D., Ireland
FAM
- MacLean, Susan L.
Ph.D., U. of Illinois-Chgo.
MEDN
- MacLeod, Catherine M.
M.D., Univ. of Manitoba
MED, PHR
- MacMullen, Nancy
Ph.D., Loyola U. of Chgo.
MATN
- Mack, Stephen
Ph.D., New York University
OBG
- Maclin, Victoria
M.D., Southern Ill. Univ.
OBG
- Maddalozzo, John
B.S., Loyola U. of Chgo.
OTO
- Madden, Thomas
M.B.Ch., United Kingdom
FAM, MED, PVM
- Madhav, Gopal
M.B.B.S., India
MED
- Maffetone, Michael A.
D.A., Catholic U. of America
MTPT, PATH
- Mahone, Sylvia R.
M.D., Southern Ill. Univ.
FAM
- Maibenco, Helen
Ph.D., U. of Illinois-Chgo.
ANAT
- Maikler, Virginia
Ph.D., U. of Illinois-Chgo.
MATN
- Maker, Vijay K.
M.B.B.S., India
GSUR
- Malalis, Leonardo C.
M.D., Philippines
PED
- Malec, Monica C.
M.D., U. of Illinois-Cham/Urb
MED
- Malhotra, Madhu
M.B.B.S., India
MED
- Malik, Asrar B.
Ph.D., U. of Toronto
PHR
- Malik, Farzana
M.B.B.S., Foreign College
PED
- Malik, Khadija
M.B.B.S., India
MED
- Malkinson, Frederick
M.D., Harvard University
DERM
- Mallett, Gordon M.
M.H.S.A., U. of Michigan
HSM
- Mallin, Bruce A.
M.D., U. of Colorado
ORTH
- Maltezos, Stavros N.
M.D., Rush University
NEUS

- Manaligod, Librada J.**
M.D., Philippines
PED
- Mandarino, Debra Ann**
M.D., Rush University
MED
- Mandel, Elias**
B.S., McGill University
PED
- Mandelbaum, Stuart P.**
M.D., Wayne State Univ.
PSY
- Mangoubi, Elie**
M.D., Belgium
PSY
- Mann, Edward P.**
M.D., U. of Illinois-Chgo.
OPHT
- Mansfield, Margo**
M.A. Roosevelt Univ.
OCC
- Manshio, Dennis T.**
M.D., Mexico
Ph.D., Illinois Inst. of Tech.
FAM
- Manson, Sharon K.**
M.S., Rush University
MEDN
- Mantha, Venkata R.R.**
M.B.B.S.
- Mar, Calvin M.**
M.D., Univ. of Texas-Dallas
OBG
- Maragos, Valerie A.**
M.D., Tulane University
PMR
- Marathi, Pushpa**
M.B.B.S., India
MED
- March, Robert J.**
M.D., Rush University
CVT
- Marchmont-Robinson, H.**
M.D., U. of Pennsylvania
GSUR
- Marder, Robert J.**
M.D., Rush University
HSM, PATH
- Mardjetko, Steven M.**
M.D., U. of Illinois-Chgo.
ORTH
- Marinelli, Antony**
M.D., Northwestern Univ.
MED
- Mariyappa, M. P.**
M.B.B.S., India
PED
- Marker, Sheri L.**
M.S., Rush University
HSM
- Markey, William S.**
M.D., Case Western Res. U.
MED
- Marschall, Stephanie F.**
M.D., U. of South Florida
DERM
- Marsh, Queen**
M.D., Wayne State Univ.
OBG
- Marshall, Ingrid**
Ph.D., West Germany
MPH
- Marshall, Julie**
M.S., Boston College
SURN
- Marshall III, Roland M.**
M.D., U. of Illinois-Chgo.
PATH
- Martin, Barbara**
M.S., Rush University
SURN
- Martin, John E.**
M.D., U. of Illinois-Chgo.
MED
- Martin, Nell F.**
M.D., U. of Colorado
ANES
- Martin, Patrick T.**
M.D., Michigan State U.
PED
- Martin, Wayne S.**
M.D., Foreign College
FAM
- Martin, William C.**
M.D., U. of Colorado
ANES
- Martinazzo-Dunn, Anna**
M.D., Italy
PSY
- Martinez, Robert**
M.D., U. of Illinois-Chgo.
FAM
- Martinez-Schallmoser, Lucy**
M.S.N., Loyola U. of Chgo.
MATN
- Martirano Jr, Michael**
M.D., Rush University
GSUR
- Marwah, Birinder S.**
M.B.B.S., Foreign College
MED
- Marwaha, Rakesh**
M.D., Foreign College
MED
- Mason, Edward L.**
M.D., U. of Illinois-Chgo.
FAM
- Mason, John W.**
M.D., Case Western Res. U.
PATH
- Massad, Leslie Stewart**
M.D., Duke University
OBG
- Massey, Patrick Baber**
M.D., Rush University
Ph.D., Northwestern Univ.
MED
- Matalon, Terence A.**
M.D., Boston University
DIAG
- Mathur, Virendra D.**
M.D., Foreign College
MED
- Matthiesen, Valerie**
D.N.Sc., Rush University
GERN
- Mattenheimer, Hermann**
M.D., Ph.D., West Germany
BCH
- Matthew, Guy R.**
M.D., Indiana Univ.
DIAG, MED
- Matuszewski, Karl**
MS, Rush University
HSM
- Maxson, Ellen L.**
M.S., St. Xavier College
PSYN
- Mayer, Robert S.**
M.D., Northwestern Univ.
MED, PMR
- Mayerhofer, Kenneth E.**
U. of Michigan
FAM
- Mazzone, Theodore**
M.D., Northwestern Univ.
MED
- Mc Afee, Mary Louise**
M.D., U. of Illinois-Chgo.
MED
- Mc Auley, James Bernard**
M.D., Northwestern Univ.
PED
- McCarron, Edward J.**
M.D., Dalhousie University
PMR
- McCabe, Mary**
M.S., Rush University
MEDN
- McCarthy, Robert J.**
D.Pharm., Purdue University
ANES, PHR
- McCarthy, William G.**
M.D., Loyola U. of Chgo.
GSUR
- McChesney, Lawrence P.**
M.D., Creighton Univ.
GSUR
- McClanahan, Michelle**
M.S., Rush University
MEDN
- Mc Clung, Mark R**
PSY
- McCormick, Alice**
M.D., Loyola U. of Chgo.
MED
- McCoy, James J.**
M.D., Loyola U. of Chgo.
FAM
- McCreary, Patricia A.**
M.D., Northwestern Univ.
MED, PVM
- McDonald-Lynch, Ann**
M.S.N., U. of Wisconsin -Milw.
MEDN
- McDunn, Susan H.**
M.D., Rush University
MED
- McFolling, Sandra**
M.S.N., U. of Illinois-Chgo.
CHN

Alphabetical Faculty Listing

- McGinness, Catherine
M.D., U. of Illinois-Chgo.
FAM
- McGann, Dennis M.
B.S., George Washington U.
HSM
- McGregor, Susan G.
M.D., Loyola U. of Chgo.
PED
- McHale, Marnie
M.S., Rush University
MEDN
- McHugh, Rosemary E.
M.D., Ireland
FAM
- McInerney, John
D.O., Chgo. Col. of Osteo.
OBG
- McKenna, Rajalaxmi
M.D., INDIA
MED, PHR
- McKiel Jr. Charles F.
M.D., Loyola U. of Chgo.
UROL
- McLachlan, Daniel L.
M.D., Northwestern Univ.
OPHT
- McLaughlin, Margaret
M.D., Univ. of Chicago
MED
- McLeod, Bruce C.
M.D., Harvard University
MED
- McMillan, Foster L.
M.D., U. of Illinois-Chgo.
GSUR
- McMillan, J. Charles
M.D., U. of Illinois-Chgo.
MED
- McNally, Randall E.
M.D., St. Louis Univ.
PLAS
- McNeill, Barbara L.
M.S.N., Wayne State Univ.
CHN
- McNeill, Thomas
M.D., U. of Illinois-Chgo.
ORTH
- McPherson, Anne T.
M.S., Northwestern Univ.
MATN
- Mead, John D.
Ph.D., Washington St. U.
PED, PSYC
- Meehan, Marjorie C.
M.D., Johns Hopkins Univ.
PSY
- Mehlinger-Mitchell, R.
M.D., U. of Illinois-Chgo.
PSY
- Mehra, Anju
M.B.B.S., India
MED
- Mehta, Bhupatkumar N.
M.B.B.S., India
MED
- Mehta, Mukundini
M.B.B.S., India
OBG
- Meier, Werner
M.D., Peru
OBG, PED
- Meister, Michael D.
M.D., U. of Illinois-Chgo.
ANES
- Meiszner, John W.
M.D., Loyola U. of Chgo.
PSY
- Melnick, Garry D.
M.D., U. of Illinois-Chgo.
FAM
- Melyn, Michelle
M.D., U. of Illinois-Chgo.
NEU, PED
- Mendelson, Lisa Sigg
M.S., Rush University
SURN
- Merai, Ghanshyam V.
M.B.B.S., India
FAM
- Mercer, Jeanne K.
M.D., U. of Illinois-Chgo.
PED
- Merchant, Zarina I.
New York University
PED
- Meredith, Paul A.
M.D., Northwestern Univ.
MED
- Merkel, Frederick K.
M.D., Johns Hopkins Univ.
IMMC, MED, GSUR
- Merlotti, Gary J.
M.D., U. of Michigan
GSUR
- Merrick, Frank W.
M.D., U. of Michigan
OBG
- Merricks, James W.
M.D., Rush University
UROL
- Merritt, Sharon Louise
D.N.Sc., Univ. of Missouri
- Mershon, Steven
M.D., Med. Col. of Ohio
PSY
- Merwick, Patricia A.
M.D., Northwestern Univ.
MED
- Meserow, James A.
M.D., Rush University
OBG
- Mesleh, George F.
M.B.Ch., Egypt
GSUR
- Messer, Joseph V.
M.D., Harvard University
MED
- Mets, Marilyn
M.D., George Washington U.
PED
- Meyer, Dianne H.
Ph.D., Northwestern Univ.
CDS, OTO
- Meyer, John H.
M.D., Italy
MED, PVM
- Meyer, Nancy
M.S.N., Wayne State Univ.
GERN
- Meyers, Steven Lee
M.D., Rush University
NEU
- Michael, Joel A.
Ph.D., Mass. Inst. of Tech.
NEU, PHY
- Michalska, Malgorzata
M.D., Poland
MED
- Michalski, Elizabeth Ann
M.S.N., Loyola U. of Chgo.
MEDN
- Mikecz, Katalin
M.D., Ph.D., Hungary
BCH, ORTH
- Mikosz, Richard P.
Ph.D., U. of Illinois-Chgo.
ORTH
- Miles, William Scott
M.D., Kansas State Univ.
PSY
- Milianti, Franklin
Ph.D., U. of Oklahoma
CDS
- Miller, Avery S.
Ekon., Sweden
HSM
- Miller, Debbie L.
B.S., U. of Ill.-Cham/Urb
MED
- Miller, Edwin
M.D., Loma Linda Univ.
FAM
- Miller, Herbert J.
Ph.D., Northwestern Univ.
MTPT
- Miller, Jack M.
M.D., U. of Illinois-Chgo.
OBG
- Miller, Kenneth
PED
- Miller, Paul E.
M.D., U. of Illinois-Chgo.
ANES
- Miller, Raymond N.
M.D., U. of Illinois-Chgo.
PSY
- Miller, Robert
M.D., Va. Commonw'lth U.
ORTH
- Miller, Robert A.
M.D., Northwestern Univ.
PED
- Millikan, Keith W.
M.D., Rush University
GSUR
- Milloy, Frank J.
M.D., Northwestern Univ.
CVT
- Minnick, Ann M.
Ph.D., U. of Illinois-Chgo.
SURN

- Minton, Paula**
M.S.N., Northern Ill. Univ.
MEDN
- Mintz, Ari D.**
M.D., Northwestern Univ.
DIAG
- Mitchell, Bryan Robert**
M.D., Loyola U. of Chgo.
PATH
- Mitra, Raman L.**
M.D., Pennsylvania St. Univ.
MED
- Mizen, Thomas R.**
M.D., Chgo. Medical Sch.
NEUS, OPHT
- Mlcoch, Anthony G.**
Ph.D., Purdue Univ.
CDS
- Modi, Haresh**
M.B.B.S., India
PED
- Mok, Young He**
M.D., South Korea
PED
- Molina, Edgar Lava**
M.D., Foreign College
PED
- Moline, Bryan G.**
M.D., U. of Illinois-Chgo.
MED
- Moll, Keith J.**
M.D., Univ. of Missouri
PED
- Mollenhauer, Jurgen**
Ph.D., West Germany
BCH
- Mollohan, William H.**
D.O., San Jose City Col.
FAM
- Molnar, Marija V.**
M.D., Yugoslavia
OBG
- Molo, Mary Wood**
M.D., Southern Ill. Univ.
OBG
- Monroe, Clarence W.**
M.D., Rush University
PLAS
- Monson, David O.**
M.D., U. of Minnesota
CVT
- Montgomery, Lynne D.**
M.Ed., Loyola U. of Chgo.
CDS
- Monti, Laura A.**
Ph.D., Loyola U. of Chgo.
PSYC
- Monticciolo, Debra L.**
B.A., Wayne State Univ.
DIAG
- Moolayil, Kumar D.**
M.B.B.S., India
PSY
- Moon, Byong H.**
Ph.D., Washington St. U.
MED, PHR
- Mooney, Gabriel O.**
M.B., Ireland
PLAS
- Moore, Julie Anne**
M.D., Creighton Univ.
DERM
- Moore, Kenneth L.**
M.D., Univ. of Chicago
MED, NEU
- Moran, Thomas E.**
M.D., Loyola U. of Chgo.
PATH
- Morch, E. Trier**
M.D., Denmark
ANES
- Morgenstern, Sidney**
M.D., United Kingdom
ORTH
- Morley, Colin**
Ph.D., Australia
BCH, PHR
- Morreale, Barbara**
M.S., Rush University
SURN
- Morrell, Frank**
M.D., Columbia Univ.
NEU
- Morris, Arthur M.**
B.A., Columbia Univ.
MED
- Morris, Clare Martha**
M.S., Univ. of Iowa
MED
- Morrison, Caroline M.**
M.D., Univ. of Missouri
PSY
- Morrison, David**
M.D., U. of Southern Cal.
PSY
- Moss, Percy C.**
M.D., Meharry Medical Col.
OBG
- Moy, James N.**
M.D., U. of Illinois-Chgo.
IMMC, MED, PED
- Mozwecz, Jeffery**
M.D., Loyola U. of Chgo.
MED
- Mozwecz, Monica A.**
M.D., U. of Illinois-Chgo.
FAM
- Muehrcke, Allan O.**
M.D., Rush University
MED
- Muehrcke, Robert C.**
M.D., U. of Illinois-Chgo.
MED
- Mueller, Christine M.**
M.D., U. of Illinois-Chgo.
FAM
- Mueller, Kathryn L.**
M.D., Univ. of Nebraska
FAM
- Mueller, Paul L.**
M.D., Ohio St. Univ.
PED
- Mueller, Rudolph J.**
M.D., Ohio St. Univ.
MED
- Mufson, Elliott J.**
M.A., Kansas St. Univ.
NEU
- Muir, Richard**
M.H.A., Georgia State U.
HSM
- Munoz, Jose N.**
M.D., Philippines
FAM
- Munson, Linda G.**
D.O., Chgo. Col. of Osteo.
PATH
- Murchison, Allison E.**
M.D., Rush University
OPHT
- Murlas, Christopher G.**
M.D., Stanford Univ.
MED
- Murphy, Joanne T.**
M.D., U. of Illinois-Chgo.
PED
- Murphy, Karen M.**
M.D., Northwestern Univ.
FAM
- Murphy, Marcia**
M.S., Rush University
MEDN
- Murphy, Patrick B.**
M.D., U. of Tennessee
MED
- Murphy, Peter**
M.D., United Kingdom
ANES
- Murray, Joan C.**
M.D., Rush University
MED
- Murray, Linda R.**
M.D., U. of Illinois-Chgo.
MED
- Murray, Meredith B.**
M.D., Loyola U. of Chgo.
OBG
- Murtaugh, Maureen**
Ph.D., U. of Connecticut
CNTR
- Murthy, Anantha K.**
M.B.B.S., India
MPH, THER
- Musfeldt, Charles D.**
M.B.A., Jacksonville Univ.
PED
- Mustafa, Mohammad A.**
M.B.B.S., Pakistan
PED
- Muthuswamy, Petham**
M.B.B.S., India
MED
- Nabatian, Iradj**
M.D., Foreign College
PSY
- Naber, Sarah**
Ph.D., U. of Illinois-Chgo.
MATN

Alphabetical Faculty Listing

- Nadimpalli, Surya P.
M.B.B.S., Foreign College
DIAG
- Nagel Jr., B. Michael
M.D., Loyola U. of Chgo.
OBG
- Nagpal, Rajeev
M.D., Foreign College
PED
- Nagy, Szabolcs
M.D., Foreign College
PATH
- Naidu, Vasantha
M.B.B.S., India
PED
- Najafi, Hassan
M.D., Iran
CVT
- Nama, Prabhavathi
M.B.B.S., India
OBG
- Namon, Ari J.
M.D., Rutgers University
OTO
- Narayan, M. S. Laxmi
M.B.B.S., India
PED
- Nasralla, Nahim H.
M.D., Honduras
GSUR
- Natarajan, Raghunatha
Ph.D., India
ORTH
- Nath, Heather Anne
M.D., Rush University
OBG
- Nathan, John E.
D.D.S., Northwestern Univ.
GSUR, PED
- Nawas, Yousef N.
M.D., Foreign College
MED
- Nebblett, Edwin E.
M.D., Loma Linda Univ.
FAM
- Necas, Kevin J.
M.B.A., Northwestern Univ.
HSM
- Nedza, Susan M.
M.D., Loyola U. of Chgo.
FAM
- Neerukonda, Sujatha
M.B., India
PMR
- Neguin, Noel D.
M.D., Philippines
MED
- Neill, William A.
M.D., Cornell Univ.
MED
- Nell, Patricia A.
M.D., Univ. of Iowa
IMMC, PED
- Nelson, Bertram
M.D., Rush University
MED
- Nelson, Delburt H.
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FAM
- Nelson, Glenn E.
M.D., Loyola U. of Chgo.
FAM
- Nelson, Jeffrey A.
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MED
- Nelson, Joan
M.S.N., De Paul Univ.
SURN
- Nelson, Karen B.
M.D., U of Calif.-San Fran.
PED, PVM
- Nelson, Kenneth S.
M.D., U. of Illinois-Chgo.
FAM
- Nelson, Linda L.
M.S., Univ. of Rochester
CHN
- Nelson, Michael N.
Ph.D., U. of Wisconsin
PED, PSYC
- Nelson, William J.
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FAM
- Nemri, Mourice S.
M.D., Italy
PED
- Nepomuceno, Jenie S.
M.D., Univ. of Chicago
MED
- Neri Jr., Gilberto S.
M.D., Philippines
MED, PVM
- Neudorf, Howard
M.D., U. of Ill.-Cham/Urb
FAM
- Nevalainen, David
Ph.D., U. of Minnesota
PATH
- Nevasky, Natalia G.
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PED
- Newman, Ann H.
M.S.N., Washington Univ.
PSYN
- Newman, Daniel C.
M.D., U. of Michigan
ORTH
- Newman, J. Christopher
M.F.A., U. of Pennsylvania
M.B.A., Univ. of Chicago
HSM
- Newman, Julius S.
M.D., U. of Illinois-Chgo.
FAM, MED
- Newman, L. Michael
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ANES
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OBG
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PSY
- Neybert, Hilary F.
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- Ng, Elizabeth W.
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- Nicholas, Everett E.
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GSUR
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HSM
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PHY
- Nolan, A. Clark
M.D., McGill University
MED
- Nolinske, Terrie L.
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OCC
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NEU
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PHR
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PED
- Norris-Berkemyer, Sheila
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OBG
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MED
- Nowicki, Norbert J.
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OPHT
- Nutenko, Victor
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PSY

- Nye, Elizabeth
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OBG
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- O'Brien, Catherine A.
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PED
- O'Brien, John F.
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MED
- O'Cherony, Domingo
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PED
- O'Connell, Shawn
M.S. Rush University
MEDN
- O'Connor, Cathleen A.
M.S., Rush University
CDS
- O'Connor, Christopher
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ANES
- O'Donoghue, J. Kevin
M.D., Georgetown Univ.
MED
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DERM
- O'Holleran, Mary B.
M.S., Rush University
MATN
- O'Neill, Hugh Michael
M.D., Chgo. Medical Sch.
FAM
- O'Reilly, Jo Ann
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RHHV
- Oh, Chad Kwangmuk
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PED
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- Oder, Donald R.
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- Odwazny, Richard S.
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MTPT
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B.S., Univ. of Michigan
MED
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HSM, PVM
- Olivieri, Michael J.
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FAM
- Olmstead, David A.
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MED
- Olsen, Joann Marie
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PSY
- Olsen, Norman M. C.
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OBG
- Olson, Denise Marie
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OBG
- Olson, Robert P.
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OBG
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GSUR
- Opacich, Karin J.
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OCC, RHHV
- Orban, Denes
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OBG
- Orgain, Javette C.
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FAM
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GGSUR
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M.D., Med. Col. of Wisc.
MED
- Orth, David H.
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CVT
- Overton, Mark H.
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- Pabst, Mary K.
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MATN
- Pachman, Daniel James
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PED
- Pacholski-Tomaka, Catherine
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OPHT
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HSM
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NEU, PED
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SURN
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OPHT
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MED
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UROL
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- Parisi, Bruce A.
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PHR
- Parnass, Samuel M.
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ANES
- Parrillo, Joseph E.
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- Patel, V. K.
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PSY
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GSUR
- Paul, Harry A.
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FAM
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M.D., India
PED
- Paul, Tarak N.
M.D., India
MED
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M.D., Southern Ill. Univ.
OBG
- Pavlatos, Andrew M.
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FAM
- Payne, John A.
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MED
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PVM
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FAM
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Ph.D., Northwestern Univ.
CDS, NEU, OTO
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M.D., U. of Washington
DERM, PATH
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FAM
- Pecen, Nancy E.
M.D., South Korea
PSY
- Peeples, Mark E.
Ph.D., Wayne State Univ.
IMMC
- Penn, Richard D.
M.D., Columbia Univ.
NEUS
- Perez, Norberto Sibayan
B.S., U. of Illinois-Chgo.
MED
- Perez-Sanz, Jose R.
M.D., Columbia Univ.
ORTH
- Pergament, Geraldine G.
Ph.D., Northwestern Univ.
PSYC
- Perkins, George L.
M.D., Rush University
PSY
- Perlia, Mildred M.
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MEDN
- Perlik, Stuart J.
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NEU
- Perlin, Michael Alan
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ANES
- Perlow, Bruce Allen
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FAM
- Perlow, Tamar
M.D., U. of Illinois-Chgo.
FAM
- Perraud, Suzanne
M.S., Rush University
PSYN
- Perret, Beverly
B.S., Duquesne University
HSM
- Perry, Anthony
M.D., Jefferson College
MED
- Pessis, Dennis A.
M.D., Chgo. Medical Sch.
UROL
- Petasnick, Jerry P.
M.D., U. of Wisconsin
DIAG
- Peters, Bruce
D.O., Chgo. Col. of Osteo.
PED
- Peters, Christopher L.
M.D., U. of Southern Calif.
ORTH
- Peterson, Phyllis
MEDU. of Ill.-Cham/Urb
CDS
- Petrak, Richard A.
M.D., Chgo. Medical Sch.
MED
- Petty, Thomas L.
M.D., Univ. of Colorado
MED
- Phaneuf, Joseph D.
M.D., Chgo. Medical Sch.
MED
- Phelan, John M.
M.D., U. of Rochester
MED
- Phelan, William H.
M.D., Albany Med. Col.
MED
- Phelan-Beecher, Lisa P.
M.S.N., Vanderbilt Univ.
MATN
- Phillips, Alexander K.
D.O., Osteo. Med. & Hlth. Sci.
M.D., Northeastern Ohio U.
THER
- Piazza, Susan J.
M.D., U. of Illinois-Chgo.
MED
- Piccione, William
M.D., U. of Rochester
CVT
- Picken, Roger N.
Ph.D., Foreign College
IMMC, MED
- Piekos, Marek W.
M.D., Foreign College
OBG
- Pieper, William J.
M.D., U. of Illinois-Chgo.
PSY
- Pierce, Scott M.
M.D., Northwestern Univ.
OBG
- Pierce-Rhoads, Mila I.
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MED, PED
- Pierpaoli, Paul G.
M.S., Michigan State U.
HSM, PHR
- Pierre-Louis, Serge
M.D., Haiti
NEU
- Pierson III, Raymond H.
M.D., Temple University
ORTH
- Pietschmann, Kathleen
M.S., U. of Illinois-Chgo.
SURN
- Pilar, Prospero B.
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PATH

- Pildes, Robert B.
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OBG
- Pillai, Sreeja J.
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MATN
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PSYC
- Pischos, Konstantinos
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HSM
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UROL
- Plate, Charles A.
Ph.D., Duke University
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IMMC, MED
- Plotnick, Bennett H..
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MED
- Plunkett, Michael J.
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FAM
- Pohlman, Daniel James
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MED
- Pombar, Xavier F.
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OBG
- Pomerantz, Rhoda S.
M.D., Medical Col. of Penna.
MED, PVM
- Pomper, Valerie Ann
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MED
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M.Ed., U. of Missouri
CNTR
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PATH
- Popper, Michael S.
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MED
- Port, Jeffrey H.
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MED
- Porter, Kenneth B.
B.S., Univ. of Maryland
PED
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ORTH
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IMMC, MED
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CNTR
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M.D., Greece
FAM
- Poulson, Elizabeth
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M.S., U. of Illinois-Chgo.
SURN
- Pouw, Tie An
M.D., West Germany
MED
- Prancan, Arthur
Ph.D., U. of Oklahoma
PHR
- Prasad, Neerukonda
M.B.B.S., India
ANES
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MED
- Presto, Perfecto P.
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ANES
- Price, Gina Gail
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MED
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M.D., Rush University
OBG
- Primoic, Diane
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HSM
- Principe, John
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MED
- Prodromos, Chadwick
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ORTH
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PED, PVM
- Puc, Frank C.
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PED
- Purl, Sandy E.
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MEDN
- Pushkin, Edward A.
M.D., Va. Commonw'lth U.
OPHT
- Putnam, Frank W.
M.D., Indiana Univ.
PSY
- Pyati, Prahlad
M.B.B.S., India
ORTH
- Quandt, Fred N.
B.S., Penn. State U.
PHY
- Quinn, Laurette
M.S., Rush University
MEDN
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M.D., Univ. of Lowell
MED
- Quinones, Jose A.
M.D., Mexico
PED
- Quiring-Emblen, Julia D.
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MEDN
- Rabbat, Adel
M.B.Ch., Egypt
FAM
- Rabin, David N.
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DIAG
- Radfar, Baroukh
M.D., Iran
PED
- Radhakrishnan, Jayant
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GSUR
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OPHT
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OBG
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- Rafelson Jr, Max E.
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BCH
- Raghunath, Teralander
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CVT, SUR
- Raines, Dale S.
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MED
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MED
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BCH
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OBG
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- Rao, Noel
M.B.B.S., India
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- Rao, Sripathy
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PED
- Rao, Vijaykumar M.
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OPHT
- Raschal, Susan
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RHHV
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D.Ch., United Kingdom
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THER
- Reddy, Viswantha B.
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ANES
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ORTH
- Reed, William R.
M.D., Louisiana College
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- Rehman, Syed M.
M.B.B.S., Pakistan
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- Reid, Mary Alice
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PED
- Reid, Robert H.
M.D., Cornell Univ.
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- Reifman, Robert A.
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PSY
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M.S., Rush University
MATN
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- Reingold, Stewart B.
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FAM, PED
- Reinstein, Michael J.
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- Reisberg, David J.
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PLAS, GSUR
- Rejowski, James E.
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OTO
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PVM
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- Resnick, Kenneth I.
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OPHT
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OBG
- Reuter, Susan M.
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PED
- Rezabek, Karen
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- Rice, David J.
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FAM
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NEUS
- Richmond, G. Wendell
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IMMC, MED
- Richter, Michael A.
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- Richtsmeier, A. J.
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- Ricker, Alfred P.
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- Ries, Michael
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OPHT
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SURN
- Robin, Jeffrey B.**
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OPHT
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OPHT
- Robinson, Alphonso L.**
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- Robinson, Kevin B.**
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ORTH
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OCC
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SURN
- Rodts, Thomas L.**
M.D., St. Louis Univ.
ORTH
- Rogers, Jill K.**
M.S.N., Michigan State U.
GERN
- Rogers, Malikha**
M.D., U. of Illinois-Chgo.
OBG
- Rojas, Manuel O.**
M.D., Spain
PED
- Romeiser Jr., Adam**
M.D., Northwestern Univ.
GSUR
- Rooney, Peter**
M.D., Mexico
UROL
- Rorig, James C.**
M.D., U. of Illinois-Chgo.
MED
- Rosculiet, John P.**
M.D., U. of Michigan
OPHT
- Rose, Michelle Patricia**
M.D., U. of Illinois-Chgo.
PED
- Rose, Raymond F.**
M.D., Washington Univ.
ANES
- Rose, Robert Marc**
M.D., Harvard University
PSY
- Rose, William H.**
Ph.D., U. of Illinois-Chgo.
FAM, HSM, ORTH, PATH
- Roseman, David L.**
M.D., U. of Illinois-Chgo.
GSUR
- Rosen, Robert L.**
M.D., U. of Michigan
MED
- Rosen, Robert S.**
M.D., Northwestern Univ.
GSUR
- Rosenbaum, Marjorie M.**
M.D., Rush University
DERM
- Rosenberg, Aaron**
M.D., Albany Med. Col.
ORTH
- Rosenberg, Ivan**
Ph.D., Foreign College
MPH
- Rosenberg, Lisa**
Ph.D., Loyola U. of Chgo.
PSYN
- Rosenberg, Marvin S.**
M.D., U. of Illinois-Chgo.
MED
- Rosenberg, Michael I.**
M.D., U. of Ill.-Cham/Urb
MED
- Rosenberg, Neil**
M.D., Va. Commonw'lth U.
MED
- Rosenblate, Howard**
M.D., U. of Illinois-Chgo.
MED
- Rosenblum, Dolores**
Ph.D., Cornell Univ.
RHHV
- Rosenblum, Leigh E.**
M.D., U. of Illinois-Chgo.
MED
- Rosenbush, Stuart**
M.D., U. of Illinois-Chgo.
MED
- Rosenmutter, Gary M.**
M.D., Northwestern Univ.
PSY
- Rosenson, Andrew Scott**
M.D., U. of Illinois-Chgo.
DIAG
- Rosenson, Robert S.**
M.D., Tulane University
MED, PATH, PVM
- Rosenthal, Ira M.**
M.D., Indiana Univ.
PED
- Rosenthal, Maurice J.**
M.D., U. of Illinois-Chgo.
PSY
- Rosenthal, Ruth Beth**
M.D., U. of Wisconsin
PSY
- Rosett, Phillip**
M.D., Chgo. Medical Sch.
GSUR
- Rosinia, Mary G.**
MATN
- Roskelley, Rigby C.**
M.D., Northwestern Univ.
MED
- Ross, Jeffrey S.**
M.D., U. of Illinois-Cham/Urb
PSY
- Rotenberg, Morrey L.**
M.D., Ohio State Univ.
MED
- Roth, Andrew A.**
M.D., Loyola U. of Chgo.
OBG
- Roth, Burton S.**
M.D., Chgo. Medical Sch.
OBG
- Roth, Erlo**
M.D., Foreign College
PATH
- Roth, Mary B.**
M.S., Natl. Col. of Educ.
OCC
- Roth, Sharon B.**
M.S., Boston University
GERN
- Rothchild, John A.**
D.D.S., U. of Illinois-Chgo.
GSUR
- Rothenberg, David M.**
M.D., U. of Illinois-Chgo.
ANES
- Rothenberg, Saul**
Ph.D., New York University
PSYC
- Rothschild, Steven K.**
M.D., U. of Michigan
FAM
- Rotman, Carlos A.**
M.D., Argentina
OBG
- Rovick, Allen**
Ph.D., U. of Illinois-Chgo.
PHY
- Rowan, Daniel Anthony**
D.O., Chgo. Col. of Osteo.
MED
- Rowe, John M**
M.S., Rush University
PSYN, RHHV
- Roy, Larry M.**
M.D., University of Chicago
PED
- Rozanski, Lorna A.**
M.S., Rush University
SURN

Alphabetical Faculty Listing

- Rozenfeld, Martin
Ph.D., Chgo. Medical Sch.
MPH, THER
- Rubenstein, Jonathan B.
M.D., Rush University
OPHT
- Rubenstein, Marvin
Ph.D., U. of Illinois-Chgo.
BCH, UROL
- Rubenstein, Albert I.
M.D., Univ. of Maryland
PATH
- Rubin, David B.
M.D., Rush University
MED, THER
- Rubin-Terrado, Marilyn
M.S., U. of Cal.-Berkeley
GERN
- Rubino, Domenica Marie
M.D., Rush University
MED
- Rubinstein, Adam Marc
M.D., Cornell U. Med. Ctr
MED
- Ruder, Maureen E.
M.D., U. of Illinois-Chgo.
OBG
- Ruff, William J.
M.D., Loyola U. of Chgo.
FAM
- Ruggie, Neal T.
M.D., Johns Hopkins U.
MED
- Russell, Hugh D.
M.D., Rush University
MED
- Russell, Patricia L.
M.D., Chgo. Medical Sch.
MED
- Russo, Martin T.
D.O., Chgo. Col. of Osteo.
FAM
- Ryan, Catherine
M.S., Northern Illinois Univ.
SURN
- Ryan, Edward C.
M.D., U. of Illinois-Chgo.
OBG
- Ryan, Ellis Caitriona
M.D., Foreign College
MED
- Ryan, Norman
B.A., U. of Ill.-Cham/Urb
FAM
- Ryan, Tracy A.
M.S., Rush University
CNTR
- Ryan, Will G.
M.D., Baylor Col. of Med.
MED
- Rybarczyk, Bruce D.
Ph.D., Virg. Commonw'lth U.
PSYC
- Ryd, Wesley H.
M.D., U. of Illinois-Chgo.
FAM
- Rydel, James Joseph
M.S., U. of Illinois-Chgo.
MED
- Saad, Nadra B.
M.B., Foreign College
PED
- Saba, Mary T.
M.S., Rush University
SURN
- Sabatino, Julie M.
M.D., Univ. of Iowa
MED
- Sabelli, Hector C.
M.D., Ph.D., Argentina
PHR, PSY
- Sabesin, Seymour
M.D., New York University
MED
- Sable, Karen S.
M.D., Rush University
MED
- Sachs, Roberta
Ph.D., Northwestern Univ.
PSY, PSYC
- Saclarides, Theodore
M.D., Univ. of Miami
GSUR, OBG, THER
- Sadeghzadeh, Patris.
M.D., Rush University
GSUR
- Sadegi, Barry
M.D., Iran
OBG
- Sadoughi, Nader
M.D., Iran
UROL
- Sadove, Max S.
M.D., Univ. of Maryland
ANES
- Saffold, Carol W.
M.D., Rush University
OBG
- Sahajpal, Surinder K.
M.B., India
FAM
- Sahajpal, Tripat
M.D., Foreign College
PED
- Salamone, Frank
M.D., Marquette Univ.
OBG
- Saleh, Nabil M.
M.B., Egypt
PED
- Salitore, Judith
M.S., Rush University
MATN
- Salomon, Catherine
M.S., U. of Illinois-Chgo.
MEDN
- Salta, Raul
M.D., Philippines
PED
- Saltiel, Armando
M.D., Michigan State U.
DIAG
- Salvi, Sharad
M.B.B.S., India
PED
- Salzman, Gary H.
M.D., Rush University
MED
- Samelson, Charles F.
M.D., U. of Illinois-Chgo.
PSY
- Sampson, Elaine M.
M.S., Rush University
CHN
- Samuelson, Dean C.
M.D., Harvard University
FAM
- Sanborn, Earl Boyce
M.D., Northwestern Univ.
GSUR
- Sanchez, Jerry
M.D., U. of Minnesota
PED
- Sanders, Roxane Y.
D.M., U. of Cincinnati
PSY
- Sandrolini, James A.
M.D., U. of Illinois-Chgo.
GSUR
- Sankary, Howard
M.D., Wake Forest Univ.
GSUR
- Sanker, Jayachandran
M.B.B.S., Australia
PSY
- Santander, Marc
M.D., Cuba
ANES
- Santiago-Berrios, Luis
M.D., Puerto Rico
PED
- Santucci, Barbara
M.D., Loyola U. of Chgo.
MED, PED
- Sapala, Shirley
M.S.N., Ohio State Univ.
CHN
- Sarin, Pramilla
M.B.B.S., Burma
THER
- Sarmiento, Emmanuel U.
M.D., Philippines
PED
- Sarpolis, Keith
M.D., U. of Michigan
MED
- Sassetti, Marian R.
M.D., Stanford University
FAM
- Sassetti, Richard J.
M.D., U. of Illinois-Chgo.
MED, IMMC
- Sastry, Vasantha
M.B.B.S., India
OBG
- Sattar, Payman
M.D., Rush University
MED

- Sauerberg, Steven K.
M.D., Rush University
FAM
- Saulters, Robert L.
M.D., U. of Mississippi
MED
- Savage, Judith G.
M.D., Meharry Medical Col.
PED
- Savage, Teresa A.
M.S., U. of Illinois-Chgo.
MATN, RHHV
- Savino, Anthony W.
M.D., Rush University
ORTH
- Sawhney, Rajinder S.
Ph.D., India
MED
- Sawhani, Omprakash
M.B.B.S., India
PED
- Saxena, Sudershan
M.D., India
ANES
- Saxena, Virenda S.
M.B.B.S., India
THER
- Saxon, Leonard T.
M.D., Loyola U. of Chgo.
FAM
- Sayana, Vijaya
M.B.B.S., India
PED
- Sayed, Yousuf Ghouse
M.D., Loyola U. of Chgo.
ANES
- Scafuri, Ralph L.
M.D., U. of Illinois-Chgo.
ORTH
- Schaer, Gary L.
M.D., Yale University
MED
- Schafer, Michael E.
M.D., Chicago Med. School
PLAS
- Schaff, Mary Ruth
M.D., U. of Cincinnati
PSY
- Schaffer, Randall R.
M.D., Loma Linda Univ.
FAM
- Schaffner, John A.
M.D., Rush University
MED, PATH
- Schaller, Elizabeth
M.S., St. John's Univ.
MTPT
- Schapiro, Joseph S.
M.D., Univ. of Maryland
PED
- Schechter, Esther
Ph.D., Univ. of Chicago
IMMC
- Scheetz, Annette A.
M.D., U. of Illinois-Chgo.
MED
- Scheftner, William A.
M.D., U. of Wisconsin
PSY
- Schenck, Robert R.
M.D., U. of Illinois-Chgo.
ORTH, PLAS
- Scherubel, Jan
Ph.D., U. of Illinois-Chgo.
MEDN
- Schick, Vernon F.
M.D., Rush University
MED
- Schillo, Richard
M.S., Rush University
SURN
- Schipplein, Owen D.
Ph.D., U. of Illinois-Chgo.
ORTH
- Schlatter, Betty Louise
B.S.N., Bowling Green St. U.
CHN
- Schlesinger, Marc L.
M.D., Loyola U. of Chgo.
MED
- Schlossberg, Debra L.
M.D., Univ. of Cincinnati
OBG
- Schmid, Thomas M.
Ph.D., U. of Ill.-Cham/Urb
BCH
- Schmidt, Anthony
Ph.D., Princeton Univ.
ANAT
- Schnitzer, Thomas J.
M.D., Harvard University
Ph.D., United Kingdom
MED
- Schoenberger, James A.
M.D., Univ. of Chicago
MED, PVM
- Schoenenberger, Joseph
Ph.D., Florida State Univ.
PSYC, PVM
- Schowalter, Karlene R.
M.S., Rush University
CHN
- Schraufnagel, Mary N.
M.D., U. of Illinois-Chgo.
MED
- Schreiber, Nancy
M.S.N., Loyola U. of Chgo.
MEDN
- Schreiber, Solomon
M.D., New York University
PATH
- Schrift, Michael J.
D.O., U. of Med. & Dent of N.J.
PSY
- Schroeder, Steven M.
M.D., Northwestern Univ.
PSY
- Schubert, Steven R.
M.D., Med. Col. of Wisc.
MED
- Schuch, Joanne M.
M.S., U. of Connecticut
M.B.A., Case Western Reserve
MEDN
- Schuessler, Roger R.
M.D., Washington Univ.
MED
- Schultz, Gail
M.D., Rush University
ANES
- Schumacher, Barbara
B.S., Loyola Univ. of Chgo.
BCH
- Schumacher, David Lyle
M.D., Ohio State U.
GSUR
- Schupp, Elizabeth A.
M.D., Univ. of Kansas
MED
- Schupp, Mary C.
M.D., Med. Inst. of Minn.
OBG
- Schuytema, Eunice E.
Ph.D., Univ. of Iowa
IMMC
- Schwartz, Daniel
M.D., Baylor University
PATH
- Schwartz, David Nathan
M.D., Rush University
BCH
- Schwartz, Douglas B.
M.D., Univ. of Missouri
MED
- Schwartz, Howard R.
MED
- Schwartz, Maurice A.
M.D., U. of Ill.-Cham/Urb
MED
- Schwartz, Melvin M.
M.D., U. of Minnesota
PATH
- Schwartz, Michael R.
M.D., New York Med. Col.
NEU
- Schwartz, Theodore B.
M.D., Johns Hopkins Univ.
MED
- Schwarz, Marvin
M.D., Wayne State Univ.
PSY
- Schwer, William
M.D., U. of Illinois-Chgo.
FAM
- Scimecca, Rae L.
M.D., St. Louis Univ.
PED
- Scorza, Elaine
M.S.N., St. Xavier College
PSYN
- Scupham, William K.
M.D., Northwestern Univ.
MED
- Seale, Raymond
Ph.D., U. of Minnesota
ANAT
- Seetapun, Anun
M.D., Thailand
PLAS
- Segreti, John
M.D., Rush University
MED

Alphabetical Faculty Listing

- Seidenberg, Vicki L.
M.D., S.U.N.Y. at Buffalo
PMR
- Seidler, Andreas
M.D., U. of Illinois-Chgo.
MED
- Seim, Sandra K.
M.S., Northwestern Univ.
M.B.A., Univ. of Chicago
HSM, PATH
- Seker Jr, Shanti J.
M.B.B.S., India
PED
- Sekulic, Dusica
M.D., Foreign College
MED
- Seltzberg-Romeo, Roni
M.D., Australia
PSY
- Seltzer, James E.
D.O., Chgo. Col. of Osteo.
OBG
- Semel, Jeffrey D.
M.D., Univ. of Chicago
MED
- Senger, Christof
M.D., Foreign College
PATH
- Sequeira, Winston
M.B.B.S., Foreign College
MED
- Serratto-Benvenuto, M.
M.D., Italy
PED
- Serry, Cyrus
M.D., Iran
CVT
- Seshadri, Kandiyur
M.B.B.S., India
ANES
- Sha, Beverly E.
M.D., Johns Hopkins Univ.
MED
- Shafer, Sid J.
M.D., U. of Illinois-Chgo.
ORTH
- Shaffer, Lemuel
M.D., U. of Illinois-Chgo.
OBG
- Shah, Amit B.
M.D., Temple University
THER
- Shah, Ila Ashok
D.Ped., India
PED
- Shah, Mahendra M.
M.S., India
MED
- Shah, Rajendra M.
M.B.B.S., India
PLAS
- Shahinpour, Nayereh
M.S.N., Wayne State Univ.
MEDN
- Shallat, Charles H.
M.D., U. of Illinois-Chgo.
MED
- Shannon, Iris
Ph.D., U. of Illinois-Chgo.
CHN, HSM
- Shannon, Kathleen M.
M.D., Rush University
NEU
- Shapiro, Jules S.
M.D., U. of Illinois-Chgo.
ORTH
- Shapiro, Roberta J.
M.P.H., Yale University
M.B.A., Univ. of Chicago
HSM
- Shareef, Maliha Jabeen
M.B.B.S., Foreign College
PED
- Shariff, Nayeem
M.D., India
FAM
- Sharma, Shobha
M.B.B.S., India
PATH
- Sharma, Sushil K
M.D., India
MED
- Sheaff, Charles Milton
M.D., Rush University
GSUR
- Sheinkop, Mitchell B.
M.D., Chgo. Medical Sch.
ORTH
- Shekarloo, Afrasiab
M.D., Iran
OBG
- Sheldon, Mark Peter
Ph.D., Brandeis Univ.
RHHV
- Sheldon, Stephen H.
D.O., Chgo. Col. of Osteo.
PED, PVM
- Shenker, David M
M.D., Tufts University
NEU
- Shepard, Alan G.
M.D., Loyola U. of Chgo.
NEU
- Shepherd, Sandra K.
Ph.D., Pennsylvania St. U.
CNTR
- Sher, Tamara
M.A., U. of North Carolina
PSYC
- Sheridan, Patrick
M.D., Rush University
MED
- Shevtchenko, Valeri
M.D., Foreign College
BCH
- Shewmake, Floyd
M.D., U. of Illinois-Chgo.
MED
- Shicker, Louis
B.A., Israel
MED
- Shidler, Helen
M.S., Rush University
MEDN
- Shield, Jo Ellen
M.S., U. of Illinois-Chgo.
CNTR
- Shindollar, Joyce
M.B.A., Rosary College
HSM
- Shiomoto, Gail M.
M.D., U. of Illinois-Chgo.
MED
- Shirokov, Roman E.
Ph.D., Foreign College
PHY
- Shirota, Hiroshi
Ph.D., Foreign College
BCH
- Shivde, Pinakini S.
M.D., India
PED
- Shmigelsky, Irene
M.D., U. of Illinois-Chgo.
PED
- Shobris, Martin
M.D., Ph.D., West Germany
FAM
- Shoelson, Allan J.
D.P.M., Scholl Col. of Podia.
ORTH
- Shorr, Gail Joyce
M.D., U. of Illinois-Chgo.
PED
- Short, John J.
M.M., Northwestern Univ.
HSM
- Short, Ronald M.
M.D., Hahnemann Univ.
MED
- Shott, Susan
Ph.D., Univ. of Chicago
PVM
- Shover, James D.
B.S., Western Illinois U.
MTPT
- Showel, John L.
M.D., U. of Illinois-Chgo.
MED
- Shufeldt, John J.
M.D., Chgo. Medical Sch.
FAM
- Shulman, Morton
M.D., U. of Illinois-Chgo.
ANES
- Shulman, Robert B.
M.D., Chgo. Medical Sch.
PSY
- Shulruff, Reeve N.
M.D., Northwestern Univ.
PED
- Shum, Norine
M.S., De Paul Univ.
HSM
- Shvartsman, Leonid
M.D., Soviet Union
PSY
- Sidell, Richard
M.D., Wayne State Univ.
ORTH
- Siegel, Irwin
M.D., Northwestern Univ.
NEU, ORTH

- Siegel, Joan
Ph.D., U. of Massachusetts
IMMC, MTPT
- Siegel, Marc Evan
M.D., Georgetown Univ.
OBG
- Siegel, Sandra C.
M.A., Northern Ill. Univ.
PED
- Sietsema, Dale A.
B.S., U. of Illinois-Chgo.
HSM
- Siglin, Martin G.
M.D., Rush University
MED
- Silerzio, Paula
M.O.T., Western Michigan U.
OCC
- Silins, Astrida I.
M.D., West Germany
ANES
- Silins, V. Raymond
M.D., West Germany
MED
- Siliunas, Donatas
M.D., U. of Illinois-Chgo.
DIAG
- Silver, Bruce A.
M.D., Loyola U. of Chgo.
DIAG
- Silver, Lori D'Arco
M.S., Rush University
MEDN
- Silver, Michael
M.D., Albany Med. Col.
MED
- Silverman, Paul
M.D., Univ. of Chicago
MED
- Silverstein, Burton
Ph.D., Southern Ill. Univ.
PMR
- Silvestri, Jean M.
M.D., U. of Pittsburgh
PED
- Simon, David
M.D., Ph.D., Rush University
MED
- Simoton, Ronald L.
D.O., Chgo. Col. of Osteo.
FAM
- Singh, Priti
NEU
- Singh, Rama S.
M.B.B.S., India
PED
- Singhal, Ajay K.
M.B.B.S., Foreign College
- Sinioris, Marie E.
M.P.H., U. of Illinois-Chgo.
HSM
- Sinkora, Glenda
M.S., Rush University
SURN
- Sirota, Ronald L.
M.D., Johns Hopkins Univ.
PATH
- Sithichoke-Rattan, Nuannoi
Ph.D., U. of Illinois-Chgo.
MEDN
- Sittler, Stephen S.
M.D., Case Western Res. U.
MED
- Sivan, Abigail B.
Ph.D., New York University
PSY, PSYC
- Sivarajan, Thenmathi
M.B.B.S., India
PED
- Sivertsen, Lynn
M.S.N., U. of Illinois-Chgo.
GERN
- Skarulis, Patricia
M.A., St. John's Univ.
HSM
- Skinner, Sarah
M.Ed., Loyola U. of Chgo.
OCC
- Skipor, Anastasia K.
U. of Illinois-Chgo.
ORTH
- Skipper, Annalynn
M.S., Texas Tech. Univ.
CNTR
- Skuba, Thomas D.
M.D., U. of Illinois-Chgo.
MED
- Skul, Bozica
M.D., Yugoslavia
FAM
- Skul, Vesna
M.D., Rush University
MED
- Sky Peck, Howard H.
Ph.D., U. of Southern Cal.
BCH
- Slack, Jeanne
D.N.Sc., Rush University
MATN
- Slivnick, Barbara Yate
M.D., U. of Ill.-Cham/Urb
PED
- Slowie, Linda A.
M.S., Univ. of Chicago
CNTR
- Slutsky, Joel N.
M.D., Mexico
UROL
- Smart, Kathryn A.
M.S., Rush University
GERN
- Smeltzer, Carolyn H.
Ed.D., Loyola U. of Chgo.
MEDN
- Smith, Cheryl Ann
M.S., Rhode Island Univ.
CHN
- Smith, Claire S.
M.D., Loyola U. of Chgo.
ANAT, DIAG
- Smith, Gail
M.D., Tufts University
DIAG
- Smith, Gregory E.
M.D., Howard University
FAM
- Smith, Joyce M.
M.D., U. of Ill.-Cham/Urb
PED
- Smith, Kimberly Yvette
MED
- Smith, Michael C.
M.D., Rush University
NEU
- Smith, Wayne
M.D., Northwestern Univ.
MED
- Smith, Xavier P.
M.S., Rush University
MEDN
- Smyrniotis, Colleen M.
M.S.N., Loyola U. of Chgo.
GERN
- Snell, Jeffrey R.
M.D., Rush University
MED
- Snopko, Rose Marie
Ph.D., U. of Ill.-Cham/Urb
BCH., MED
- Snyder, Leonard
M.D., Northwestern Univ.
GSUR
- Snyder, Marsha
M.S.N., U. of Illinois-Chgo.
PSYN
- Sobin, W. Harley
M.D., New York University
MED
- Soble, Jeffrey S.
M.D., Univ. of Michigan
MED
- Sochacki, Stacy L.
M.S., New York State Col.
HSM
- Sodetz, Richard A.
M.D., U. of Illinois-Chgo.
ORTH
- Soglin, David F.
M.D., Rush University
PED
- Sokalski, Steven J.
D.O., Chgo. Col. of Osteo.
MED
- Sokany, Nancy M.
M.D., Ohio State Univ.
MED
- Sokovich, Ronald S.
M.D., Southern Ill. Univ.
UROL
- Solliday, Norman H.
M.D., Univ. of Chicago
MED
- Soltes, Barbara
M.D., Foreign College
OBG
- Soltes, Steven F.
M.D., Loyola U. of Chgo.
OTO
- Somers, Jonathan
M.D., Pennsylvania St. U.
CVT

Alphabetical Faculty Listing

- Sommerville, Clara M.
M.S.N., Governors State U.
CHN
- Somoza, Lisa Ines
M.D., Foreign College
MED
- Sonego, Nancy Gail
D.M.D., U. of Louisville
GSUR
- Sorokin, Peter
M.D., Foreign College
DIAG
- Sosis, Mitchel
M.D., U. of Kentucky
ANES
- Southwick, Harry W.
M.D., Harvard University
GSUR
- Sowa, Diane
M.B.A., De Paul Univ.
CNTR
- Spaeth, Ralph
M.D., Case Western Res. U.
PED
- Spear, Gregory T.
Ph.D., U. of Illinois-Chgo.
IMMC, MED
- Speed, Curtis L.
M.D., Rush University
PED
- Sperhac, Arlene M.
Ph.D., Univ. of Denver
MATN
- Sperling, Richard L.
M.D., U. of Illinois-Chgo.
PLAS
- Spindel, David
M.D., Chgo. Medical Sch.
OPHT
- Spinka, Harold M.
M.D., Chgo. Medical Sch.
DERM
- Spiro, Barbara
M.D., Switzerland
OPHT
- St. Clair, Doris E.
M.D., Northwestern Univ.
PSY
- St. Pierre, Aimee C.
M.D., Rush University
PSY
- Stachowski, Michael M.
M.D., Loyola U. of Chgo.
MED
- Stainton, Mary Easton
M.T., Union Theo. Seminary
RHHV
- Staisz-Baczek, Maria
M.D., Poland
PED
- Stake, Jonathan J.
B.A., Northwestern Univ.
MED
- Stalker, Jamie Lynn
M.D., Rush University
MED
- Stamat, Nicholas S.
M.D., Greece
PED
- Stambolis, Vesilios
M.D., Greece
PMR
- Stamelos, Spiros G.
M.D., Foreign College
ORTH
- Stamos, Thomas Dean
M.D., Rush University
MED
- Stampley, Jan O.
M.D., Rush University
PSY
- Stanish, Paul J.
M.D., Indiana Univ.
GSUR
- Stanley, Robert E.
M.D., U. of Illinois-Chgo.
MED
- Stanton, Gerald V.
M.D., U. of Illinois-Chgo.
FAM
- Starck, Timothy W.
M.D., Rush University
ANES
- Staren, Edgar
M.D., Loyola U. of Chgo.
Ph.D., Rush University
GSUR
- Starsiak, Diane L.
M.D., U. of Illinois-Chgo.
PED
- Stavinga, Ronald F.
M.D., U. of Illinois-Chgo.
MED
- Stavrakos, Charalambos
M.D., West Germany
MED
- Stebbins, Glenn T.
Ph.D., Univ. of Arizona
NEU, PSYC
- Stec, Paul M.
D.D.S., Marquette University
GSUR
- Steed, W. David
M.D., Northwestern Univ.
PSY
- Steele, Jennifer Lynn
M.A., Ohio State Univ.
CDS
- Stefoski, Dusan
M.D., Yugoslavia
NEU
- Stein, Robert
M.S.C., Northwestern Univ.
PATH
- Stein, Robert M.
M.D., Chgo. Medical Sch.
OPHT
- Stein, Robert N.
M.D., Chgo. Medical Sch.
MED
- Stein, Zepahniah
B.S., U. of Michigan
PHR
- Steinbach, Pamela T.
M.S., Rush University
GERN
- Steinecker, Gary A.
M.D., Loyola U. of Chgo.
MED
- Steinecker, Patricia H.
M.D., Loyola U. of Chgo.
MED
- Steiner, David Garry
M.D., Rush University
MED
- Steinhauser, Janice R.
M.D., U. of Illinois-Chgo.
MED
- Stemer, Alexander A.
M.D., U. of Illinois-Chgo.
MED
- Stemmelen, Maureen Therese
M.A., Wayne State Univ.
CDS
- Stephens, Alan L.
B.A., Indiana State Univ.
GSUR
- Stern, Dean S.
D.P.M., Scholl Col. of Podia.
ORTH
- Stetson, John B.
M.D., Harvard University
ANES
- Stevens, Kathleen
M.S., Rush University
MEDN
- Stewart, James D.
Ph.D., U. of Illinois-Chgo.
PSYC
- Stewart, Karen Taylor
Ph.D., U. of Pennsylvania
PSYC
- Stier, Elizabeth A.
M.D., Cornell U. Med. Ctr.
OBG
- Stine, Robert H.
M.D., Thomas Jefferson U.
PED
- Stoeffler, Amy Louise
M.D., Rush University
OBG
- Stolar, Joel
M.D., Wayne State Univ.
OPHT
- Stone, Scott Chester
M.D., U. of Illinois-Chgo.
PMR
- Storlie, Jean
M.S., U. of Wisc - LaCrosse
PVM
- Storm, Heidi Marie
M.S., Univ. of Kansas
CNTR
- Strain, Lawrence D.
M.B.A., Tulane Univ.
IISM
- Strassner, Howard
M.D., Univ. of Chicago
OBG

- Straus, Albert K
M.D., Northwestern Univ.
Ph.D., U. of Illinois-Chgo.
GSUR
- Stringer Jr, Nelson H
M.D., Meharry Medical Col.
OBG
- Strohl, Lee H
M.D., Yale University
DERM
- Strokosch, Gary R.
M.D., U. of Illinois-Chgo.
PED
- Strote, Scott E
M.D., Southern Ill. Univ.
OBG
- Strozier, Charles P
Ph.D., Univ. of Chicago
PSY
- Strzembosz, Patricia
M.D., Loyola U. of Chgo.
PED
- Stuck, Gary D
D.O., Col. of Osteo.
FAM
- Stumpe, Marjorie
M.A., Governors State U.
MTPT
- Sturdevant, Frank
M.D., Univ. of Iowa
OBG
- Subbaiah, Papasani V
Ph.D., India
BCH, MED
- Suchy, Vladimir
M.D., Marquette Univ.
FAM
- Sugar, Oscar
M.D., George Washington U.
Ph.D., Univ. of Chicago
NEUS
- Sugimoto, Danny H.
M.D., Rush University
MED
- Suh, Sang
M.D., South Korea
ORTH
- Sukerkar, Arun N.
M.B.B.S., Foreign College
DIAG
- Suliaman, Fawzi
M.B.Ch., Iraq
PED
- Sullivan, James F.
M.D., U. of Michigan
MED
- Sullivan, Richard M.
D.D.S., Loyola U. of Chgo.
GSUR
- Sullivan, Terence P.
M.D., Northwestern Univ.
MED
- Sulyaman, Rabi F.
M.D., Lebanon
PED
- Sumner Jr, Dale R.
Ph.D., Univ. of Arizona
ANAT, ORTH
- Sundar, Kannan
M.B.B.S., Foreign College
OBG
- Supan, William A.P.
M.D., U. of Illinois-Chgo.
DIAG
- Susmano, Armando
M.D., Argentina
MED
- Swan, Lori Siegert
M.D., Rush University
DERM
- Swanson, Barbara A
D.N.Sc., Rush University
MEDN
- Swarts, Charles L
M.D., New York Med. Col.
PED
- Swartwout, Kathryn J.
B.S., Vanderbilt Univ.
CHN
- Swartz, Robert M.
M.D., U. of Michigan
PLAS
- Sweetner, Jonnelle C.
M.D., Meharry Medical Col.
MED
- Swerdlow, Arnold B.
M.D., U. of Illinois-Chgo.
GSUR
- Szatkowski, Mary
M.D., Loyola U. of Chgo.
OPHT
- Szeluga, Debra J.
Ph.D., Cornell Univ.
CNTR, MED
- Szidon, J. Peter
M.D., Brazil
MED
- Talbert, Ellis
M.D., Rush University
FAM
- Tan, Carmela Deluta
M.D., Foreign College
PATH
- Tang, Johnny M.
Ph.D., Rush University
PHY
- Tang, Jue Lin
M.D., Foreign College
MED
- Tangney, Christine
Ph.D., Virg. Poly Inst/St. U.
CNTR
- Tanner, Caroline M.
B.S., Loyola U. of Chgo.
NEU
- Tanner, Lydia
M.S., Rush University
CHN
- Tapia, Sakina S.
M.D., India
PED
- Tarlos-Benka, Judith
M.S., Northwestern Univ.
MATN
- Tarnow, Jane
D.N.Sc., Rush University
SURN
- Tarun, Donald
M.D., U. of Illinois-Chgo.
MED
- Tarzynski, Marian S.
M.D., Italy
MED
- Tausk, Kasriel
M.D., Italy
MED
- Taylor III, Samuel G.
M.D., Univ. of Chicago
MED
- Taylor IV, Samuel G.
M.D., U. of Saskatchewan
MED
- Taylor, Douglas W.
M.D., Univ. of Texas
FAM
- Taylor, Glenn C
M.B.A., Lake Forest Col.
HSM
- Taylor, Karen E.
M.D., Rush University
FAM
- Taylor III, Samuel G.
M.D., Univ. of Chicago
MED
- Taylor IV, Samuel G.
M.D., U. of Saskatchewan
MED
- Templeton, Alexander C.
M.B.B.S., United Kingdom
PATH
- Tenta, Louis T.
M.D., Indiana Univ.
OTO
- Tenzer, Penny
M.D., Israel
FAM
- Teplitz, Eric
M.D., U. of Illinois-Chgo.
MED
- Terman, Mari D.
M.B.A., Northwestern Univ.
HSM
- Terry, Cheryl Denise
M.S., St. Xavier College
SURN
- Tess, Maureen M.
M.S., U. of Illinois-Chgo.
MEDN
- Thampy, Kishore J.
M.B.B.S., Spain
PSY
- Theorell, Catherine
M.S.N., Loyola U. of Chgo.
MATN
- Thilenius, Otto G.
M.D., Foreign College
PED
- Thomas, Charlene
M.S.N., U. of Illinois-Chgo.
SURN

Alphabetical Faculty Listing

- Thomas, John A.
Ph.D., Univ. of Iowa
PHR
- Thomas, Larry L.
Ph.D., U. of Illinois-Chgo.
IMMC
- Thomas, Sharon Y.
M.D., U. of Illinois-Chgo.
FAM
- Thomas Jr, William
M.D., Boston University
PATH
- Thompson, Dennis S.
D.O., Chgo. Col. of Osteo.
PSY
- Thompson, Lee D.
Ph.D., Indiana Univ.
HSM
- Thompson, Walter C.
M.D., Loma Linda Univ.
FAM
- Thomson, Andrew
M.D., Indiana Univ.
MED
- Thomson, Cameron
M.D., U. of Illinois-Chgo.
MED
- Thonar, Eugene J-M. A.
Ph.D., United Kingdom
BCH
- Thunder, Thomas D.
M.A., Northern Ill. Univ.
CDS
- Ticho, Benjamin H.
M.D., U. of Michigan
OPHT
- Tilkin, Jeffrey M.
M.D., U. of Illinois-Chgo.
PSY
- Timm, Stuart
M.D., Indiana Univ.
MED
- Timmons, John A.
M.D., Rush University
MED
- Tiruppathi, Chinnaswamy
Ph.D., Foreign College
PHR
- Tiruvury, Anuradha
M.B.B.S., India
PED
- Tompkins, Geoffrey S.
M.D., Calif. State. U.- L, A.
ORTH
- Tomeo, Jay
M.D., Loyola Marymount U.
FAM
- Tonkovic, Russ J.
M.D., St. Louis Univ.
MED
- Topel, Jordan L.
M.D., Loyola U. of Chgo.
NEU
- Torczynski, Elise
M.D., U. of Wisconsin -Milw.
OPHT
- Tordecilla, Lydia
M.S., De Paul Univ.
GERN
- Torres, Hernando
M.D., Colombia
NEUS
- Torres, A. Margarita
M.D., U. of Cincinnati
GSUR
- Trafimow, Jordan H.
M.D., U. of Illinois-Chgo.
ORTH
- Trager, Eugene P.
M.D., U. of Illinois-Chgo.
PSY
- Trakas, Demetrius A.
M.D., Greece
PSY
- Trenholme, Gordon M.
M.D., Marquette Univ.
MED, PHR
- Tresley, Jack
M.D., U. of Illinois-Chgo.
OPHT
- Trivedi, Dinker A.
M.B.B.S., India
MED
- Trivedi, Vivek Kumar
M.D., Foreign College
ANES
- Troyk, Philip R.
Ph.D., U. of Illinois-Chgo.
NEUS
- Trubitt, Mitchell J.
M.D., U. of Illinois-Chgo.
MED
- Trubow, Leslie N.
M.D., Rush University
PED
- Truchly, Vasil
M.D., West Germany
OBG
- Trufant, John E.
Ed.D., Univ. of Florida
HSM
- Trufant, Judy
M.N., Univ. of Florida
MATN
- Trusewych, Timothy B.
D.O., Chgo. Col. of Osteo.
MED
- Trusler, Lisa
M.S.N., Vanderbilt Univ.
SURN
- Tseng, Mickey Ming-Yu
M.D., St. Louis University
ORTH
- Tsai, An Kon
M.D., Taiwan
FAM
- Tsai, Houn
M.D., Taiwan
ANES
- Tucker, W. Randolph
M.D., U. of Cincinnati
MED
- Tuman, Kenneth J.
M.D., U. of Illinois-Chgo.
ANES
- Tuman, Mary T.
M.D., Northwestern Univ.
ANES
- Tunestam, Nils J.
M.D., Sweden
PED
- Turek, Louis H.
M.D., Chgo. Medical Sch.
FAM
- Turner, David A.
M.D., Univ. of Chicago
DIAG
- Turner, Irene R.
M.T., Radcliffe College
PVM
- Turner, Thomas M.
D.V.M., Auburn Univ.
ORTH
- Twiss, Alston C.
M.D., Temple University
MED
- Tyler, Lamont A.
D.O., Chgo. Col. of Osteo.
FAM
- Tyrrell, Shevawn O'Connor
M.S., Loyola U. of Chgo.
MATN
- Tyszk, Thomas S.
M.D., U. of Illinois-Chgo.
MED
- Uchitelle, Robin
M.D., Southern Ill. Univ.
FAM
- Uckerman, Mary Therese
M.D., Loyola U. of Chgo.
PATH
- Uebele, Joan A
M.S., U. of Illinois-Chgo.
SURN
- Uebelhart, Daniel
M.D., Switzerland
BCH, MED
- Uhing, Michael R.
M.D., Creighton Univ.
PED
- Ulsafer-Van Lanen, Jane
M.S., U. of Colorado
PSYN
- Upadhyaya, Varsha V.
M.B.B.S., India
OBG
- Upadhyaya, Vinod P.
M.B.B.S., India
PED
- Urban, Thomas Francis
M.D., Wayne State Univ.
ANES
- Urbon, John
Ph.D., Carnegie-Mellon U.
MPH, THER
- Uretz, Eugene F.
M.S., Univ. of Chicago
MED

- Valentino, Leonard A.
M.D., Creighton Univ.
MED, PED
- Vallina, Van
M.D., U. of Illinois-Chgo.
GSUR
- VanAnrooy, Michael
M.D., Rush University
ORTH
- Van Berkum, Monique M.
M.D., U. of Ill.-Cham/Urb.
MED
- Van Fleet, Nancy
M.S., Southern Ill. U.
GERN
- Van Slyke Patricia Ann
M.S., Illinois State Univ.
CDS
- Vance, Alicia Mae
M.S., Rush University
CNTR
- Vanderberg Dent, Susan
M.D., U. of Illinois-Chgo.
FAM
- Vanderlaan, Burton F.
M.D., U. of Illinois-Chgo.
MED
- Vargas, Rafael J.
M.D., Foreign College
FAM
- Vasan, Ushanalini
M.B.B.S., D.C.H., India
PED
- Vazquez, Juan J.
M.D., Spain
PSY
- Velada, Pedro I.
M.D., Philippines
PED
- Velasco, Jose
M.D., Ph.D., Spain
GSUR
- Veldman, Marie A.
D.O., Chgo. Col. of Osteo.
FAM
- Vellody, Kunhunni
M.B.B.S., India
PED
- Venkataraman, Munusamy
D.V.M., Ph.D., India
IMMC, MED
- Vento, Elio G.
M.D., Italy
OBG
- Venugopal, Parameswaran
MED
- Venzon, Michael A.
M.S., Northwestern Univ.
HSM, PMR
- Vercelli, Kenneth
M.D., Rush University
MED
- Vercoe, James L.
M.D., U. of Michigan
PED
- Vidaver-Cohen, Doris
M.A., U. of Michigan
NEU, PVM
- Vidinli, Mustafa
M.D., Turkey
MED
- Vierling, Timothy E.
M.D., St. Louis Univ.
OBG
- Viernes, Ann L.
M.S., De Paul Univ.
MTPT
- Vij, Ravi
M.B.B.S., Foreign College
MED
- Villaflor, Edward
M.D., Loyola U. of Chgo.
ANES
- Villwock, Michael D.
M.S., Rush University
CHN
- Vinci, Samuel
D.P.M., Scholl Col. of Podia.
ORTH
- Vindver, Gabriel I.
M.D., Foreign College
ORTH
- Vitullo, Dolores A.
D.O., Chgo. Col. of Osteo.
PED
- Vivar, Zenaida
M.D., Philippines
PSY
- Vizon, Maria S.
M.S., U. of Wisconsin
HSM
- Vogel, Lawrence C.
M.D., U. of Illinois-Chgo.
PED
- Vogt, Val Yvette
M.D., Rush University
OBG
- Volek, Paul
M.P.H., U. of North Carolina
PATH
- Volgman, Annabelle Santos
M.D., Columbia Univ.
MED
- Volin, Beth
M.D., Northwestern Univ.
PED
- Voltolina, Eugene J.
M.D., Loyola U. of Chgo.
PSY
- Von Dreele, Margaret M.
Ph.D., U. of Cincinnati
MEDN
- Von Roenn, Kelvin A.
M.D., U. of Kentucky
NEUS
- Vulgaris, William
M.D., Greece
FAM
- Wade, Margaret E.
M.D., Loyola U. of Chgo.
FAM
- Wagner, Robert H.
M.D., U. of Illinois-Chgo.
FAM
- Wagner, Ronald Gene
M.D., U. of Michigan
ANES
- Wahl, Larry H.
D.O., Michigan St. U.
NEU
- Wahlstrom Jr, Carl M.
B.A., U. of Illinois-Chgo.
PSY
- Wai, William Y.
M.D., Taiwan
PED
- Waickus, Cynthia Marie
M.D., Ph.D., U. of Ill.-Chgo.
BCH
- Wainer, Gary C.
D.O., Chgo. Col. of Osteo.
FAM
- Walasek, Joan A.
B.A., Natl. Col. of Educ.
MTPT
- Walcz, Erzsebet
Ph.D., Foreign College
BCH
- Walker, Valerie C.
M.D., Rush University
MED
- Wall, Timothy R.
M.D., Indiana U. of Penna.
PED
- Wallace, Patrick J.
M.D., Univ. of Chicago
GSUR
- Walraven, Ellen S.
M.D., Baylor Col. of Med.
MED
- Walsh, John J.
M.D., U. of Illinois-Chgo.
FAM
- Walsh, Karen M.
M.S., Northwestern Univ.
MEDN
- Walton, Jane
M.S., Arizona State U.
GERN
- Walton, Sylvia Enide
M.D., Meharry Medical Col.
MED
- Wanczyk, Teresa
D.O., Chgo. Col. of Osteo.
PED
- Wang, Benjamin J.
M.D., Rush University
MED
- Wang, Chang-Yang
M.D., Taiwan
Ph.D., Northwestern U.
OTO
- Wang, Jin-Zhao
Ph.D., Rutgers Univ.
DIAG
- Wang, Kuo-Fuh
M.D., Taiwan
PED
- Ward, Mark A.
M.D., Baylor Col. of Med.
PED

Alphabetical Faculty Listing

- Warren, Dawn Maria
M.D., Rush University
OBG
- Warren, William H.
M.D., Univ. of Toronto
CVT, PATH
- Wasielewski, Ray C.
M.D., Ohio State Univ.
ORTH
- Wasyliw, Orest
Ph.D., U. of Illinois-Chgo.
PSY, PSYC
- Waszkiewicz, Margaret
M.S., Rush University
GERN
- Waters, Gary Edward
B.S., U. of Illinois-Chgo.
OBG
- Watkins, Rena
M.D., Howard Univ.
FAM
- Watts, Jr, Risher
M.D., Howard Univ.
FAM
- Waxman, Jordan
M.D., U. of Illinois-Chgo.
MED
- Weaver, Denise Cecile
M.D., Rush University
MED
- Webb, John R.
MA Webster Univ.
HSM
- Webster, Robert A.
Ph.D., Univ. of Texas
BCH, MTPT, OBG
- Weese-Mayer, Debra E.
M.D., Univ. of Chicago
PED
- Weinberg Jr, Milton
M.D., Duke University
CVT
- Weinrib, Harry P.
M.D., Ph.D., Soviet Union
PLAS
- Weinstein, Karen B.
M.D., Rush University
MED
- Weinstein, Susan
B.S., U. of Illinois-Chgo.
OCC
- Weir, Terrie Lynn
M.D., Rush University
MED
- Weis, Ernest M.
M.D., U. of Illinois-Chgo.
PED
- Weisbart, Edmond
M.D., U. of Illinois-Chgo.
FAM
- Weisberg, Mitchell R.
B.S., U. of Ill.-Cham/Urb
MED
- Weisberger, Lise
M.D., Penna. State U.
FAM
- Weisman, Nancy E.
J.D., Illinois Inst. of Tech.
HSM
- Weiss, Gerald E.
M.D., Switzerland
PED
- Weiss, Mark S
M.D., New York Med. Col.
PED
- Weiss, Raymond P.
M.D., Chgo. Medical Sch.
MED
- Weitzman, Debra Rae
M.D., U. of Illinois-Chgo.
OBG
- Weitzner, John S.
M.D., Univ. of Chicago
OBG
- Wellman, Margaret Mary
M.D., U. of Baltimore
MEDN
- Welsh, Brady T.
M.D., Northwestern Univ.
FAM
- Welsh, Thomas J.
D.V.M., Oklahoma St. Univ.
Ph.D., U. of Illinois-Chgo.
IMMC
- Werhane, Mary Jo U.
M.S., U. of Illinois-Chgo.
MEDN
- West, James Ward
M.D., Loyola U. of Chgo.
PSY
- Wester, C. William
B.A., Bowdoin College
MED
- Wester, Carolyn Negley
M.D., Dartmouth College
MED
- Westerman, Maxwell P.
M.D., U. of Louisville
MED
- Westheimer, Ruth
M.D., Rush University
PSY
- Wetzel, Allan B.
Ph.D., U. of Kentucky
PMR, PSYC
- Weyrens, Francis P.
M.D., St. Louis Univ.
OBG
- Whisler, Kenneth E.
Ph.D., U. of Wisconsin
BCH, MTPT
- Whisler, Walter
M.D., Ph.D., U. of Ill.-Chgo.
BCH, NEU, NEUS
- Whitaker, Ronald H.
M.S., Ohio State Univ.
HSM
- White, Anna M.
M.S.N., De Paul Univ.
MEDN
- White, Donald R.
M.D., Baylor Col. of Med.
PED
- White, Martha Joy
M.S.N., U. of Michigan
SURN
- White-Traut, Rosemary
D.N.Sc., Rush University
MATN
- Whitney, Carolyn
M.B.A., M.S.I.S., Roosevelt U.
HSM
- Wichter, Melvin
M.D., New York Med. Col.
NEU
- Wickham, Rita
M.S., Northern Illinois U.
MEDN
- Wiener, Gregory Alan
M.D., Univ. of Kansas
GSUR
- Wigder, Herbert N.
M.D., U. of Wisconsin
FAM
- Wigton, Thomas R.
M.D., Medical Col. of Ohio
OBG
- Wilbanks, George D.
M.D., Duke University
OBG
- Wilbrink, Bert
Ph.D., Foreign College
BCH
- Wilkinson, Steven B.
M.D., U. of Missouri
NEUS
- Willander, Duane A.
M.D., Northwestern Univ.
ORTH
- Williams, Brian David
M.D., Medical Col. of Wisc.
ANES
- Williams, E. Jane
Ph.D., Ohio State Univ.
FAM, PVM
- Williams, Herlanders J.
B.A., Wartburg College
OBG
- Williams, Jackie A.
M.D., Howard University
OBG
- Williams, James M.
Ph.D., Indiana Univ.
ANAT, BCH, MED
- Williams, James W.
M.D., U. of Tennessee
GSUR
- Williams, Mark Timothy
M.D., Wayne State University
ANES
- Williams, Mavis T.
M.D., Brown University
PED
- Williamson, Wayne C.
M.D., U. of Cincinnati
MED
- Wilson, Robert S.
Ph.D., Wayne State Univ.
PSYC

- Williams, Ruth M.
M.S.N., St. Xavier College
SURN
- Willis, Lucy
M.S.N., Ohio State Univ.
MATN
- Wing, Herman
M.D., U. of Texas
MED
- Winkelman, Lois
M.S., Rush University
SURN
- Winkels, Kathy
MA Western Mich. Univ.
CDS
- Winsberg, Gwynne Roese
Ph.D., Univ. of Chicago
PSY
- Winston, Leonard
D.P.M., Scholl Col. Podiatric
ORTH
- Winter, Paul L.
M.D., Northwestern Univ.
MED
- Wirtshafter, Robert
M.D., Univ. of Chicago
PED
- Wisby, Marian
M.S., Rush University
GERN
- Wise, Ronald D.
M.D., U. of Illinois-Chgo.
IMMC
- Witherbee, Patricia A.
M.S., Loyola U. of Chgo.
HSM
- Witkowski, Leon J.
M.D., Northwestern Univ.
GSUR
- Witkowski, Robert
M.D., Rush University
GSUR
- Witt, Thomas R.
M.D., Northwestern Univ.
GSUR
- Wittert, Donna
M.S., U. of Illinois-Chgo.
SURN
- Wiznitzer, Israel
M.D., Northwestern Univ.
MED
- Wojcik, Edward
M.D., Loyola U. of Chgo.
ORTH
- Wolf, Mark R.
D.D.S., U. of Illinois-Chgo.
OTO
- Wolf, Robert John
M.D., Northwestern Univ.
MED
- Wolfe, Charles K.
M.D., U. of Pennsylvania
MED
- Wolff, John R.
M.D., Northwestern Univ.
OBG, PSY
- Wolff, Marcy E.
M.D., U.C.L.A.
FAM
- Wolin, Preston M.
M.D., U. of Illinois-Chgo.
ORTH
- Wolter, Janet
M.D., U. of Illinois-Chgo.
MED
- Wong, Alfonso
M.D., Philippines
ANES
- Wong, Paul W.
M.D., Hong Kong
MED, PED
- Wood, Joseph P.
M.D., U. of Illinois-Chgo.
FAM
- Wood, Nancy B.
Ph.D., Rutgers Univ.
OBG
- Woodring, Barbara C.
Ed.D., Ball State Univ.
MATN
- Wool, Norman L.
M.D., Chgo. Medical Sch.
GSUR
- Wright, Donovan G.
M.D., U. of Minnesota
PSY
- Wright, Keith Delano
B.S., Morehouse College
MED
- Wright, Michael Hill
ORTH
- Wright, Robert B.
M.D., U. of Illinois-Chgo.
NEU
- Wright-Quinones, Vonda T.
M.S., Rush University
MEDN
- Wu, Dickson S.
M.D., Indiana U. of Penna.
ANES
- Wurtz, Rebecca M.
M.D., Harvard Univ.
MED
- Wyhinny, George
M.D., U. of Illinois-Chgo.
OPHT
- Wyhinny, Patricia
B.A., Univ. of Chicago
DERM
- Yadava, Ved Prakash
M.D., India
MED
- Yamamoto, Leslie T.
M.D., Rush University
FAM
- Yang, Sen-Lian
M.D., Foreign College
OBG
- Yastrow, Edward S.
B.S., Washington & Lee U.
ANES
- Yballe, Sonia B.
M.D., Philippines
PSY
- Yedor, Katherine E.
M.A., Northwestern Univ.
CDS
- Yee, Martin J.
M.D., Rush University
PMR
- Yeldandi, Vijay
M.B.B.S., India
MED
- Yellen, Suzanne B.
M.A., U. of Illinois-Chgo.
PSYC
- Yingst, Gisela J.
M.D., U. of Illinois-Chgo.
PED
- Yocum, Carolyn J.
Ph.D., U. of Illinois-Chgo.
SURN
- Yokoo, Teiriki
B.A., Northwestern Univ.
B.S., Rush University
PMR
- Yordan, Edgardo
M.D., Univ. of Maryland
OBG
- Yosko, Kathleen
M.N., U. of Pittsburgh
GERN
- Young, Carolyn V.
M.A., Northwestern Univ.
CDS, OTO
- Young, Michael
Ph.D., Adelphi University
PSY, PSYC
- Young, Stephanie A.
M.D., Loyola U. of Chgo.
PATH
- Yrapsis, Nicholas
M.D., Greece
OBG
- Yung, Shirley
M.D.C.M., McGill Univ.
FAM
- Zacharia, Dubravko J.
M.D., Yugoslavia
OBG
- Zadylak, Robert G.
M.D., Loyola U. of Chgo.
PSY
- Zaidan, Jonathan T.
M.D., Wayne State University
OBG
- Zaidi, Syed S. A.
M.B.B.S. Pakistan
MED
- Zajecka, John M.
M.D., Loyola U. of Chgo.
PSY
- Zakko, Hazim Y.
M.B.Ch., Iraq
PSY
- Zallik, Ned I.
M.D., Chgo. Medical Sch.
MED
- Zaneveld, Lourens
D.V.M., Ph.D., U. of Georgia
BCH, OBG, PHY

Alphabetical Faculty Listing

Zaytsev, Polina
M.D., Soviet Union
PATH

Zbilut, Joseph P.
D.N.Sc., Rush University
Ph.D., Northwestern Univ.
PHY, RHHV, SURN

Zeigler, Donald W.
M.A., Indiana U. of Penna.
PVM

Zeitz, Howard J.
M.D., U. of Illinois-Chgo.
IMMC MED

Zelinger, Allan B.
M.D., Rush University
MED

Zelinger, Bernard B
M.D., Germany
OBG

Zeller, Janice M
M.D., U. of Illinois-Chgo.
IMMC, MEDN

Zervopoulos, Evangelia
M.D., Greece
PED

Zhou, Jiemin
Ph.D., Foreign College
PED

Zielinski, Dorothy A.
M.D., Rush University
FAM

Zieserl, Robert M
M.S., Loyola U. of Chgo.
HSM

Zimmerman, Dianne Marie
J.D., Hastings College
HSM

Zimmerman, J.C. Chava
M.D., Wayne State U.
FAM

Zimmerman, Roger P.
Ph.D., Yale
ANAT, NEU, PHY

Zitter, Robert E.
Ph.D., Univ. of West Virginia
FAM, PSYC

Zoldan, Jack
M.D., U. of Illinois-Chgo.
MED

Zucker, Alan J.
M.D., U. of Illinois-Chgo.
OBG

Zuckerman, Victor
D.O., Phila. Col. Osteo. Med.
PED

Zurbrugg, Jo B
M.D., Washington Univ.
PED



ENDOWED CHAIRS

Endowed Chairs at Rush-Presbyterian-St. Luke's Medical Center

Endowment provides the margin for excellence at Rush University as generous and far-sighted giving helps build leadership among the faculties. Commitments for endowed chairs provide the donor with the satisfaction of enabling Rush faculty to advance education and research in the conquest of disease and make it possible for Rush University to continue to attract scientists and educators of the highest quality. There are now 54 endowed chairs at the Medical Center, more than half of them fully funded.

Chairs currently occupied are indicated by holder's name and title. The order is by the establishment date.

Jean Schweppe Armour **Chair of Neurology**

This, the first endowed chair at a private hospital in this country, was established in 1963 as a memorial to Jean Schweppe Armour by A. Watson Armour III, other members of the Armour family, and by her friends as a tribute to her leadership as a volunteer for the Medical Center and as a member of its Woman's Board.

Holder: Jacob H. Fox, M.D.

*The Jean Schweppe Armour Professor of Neurology
Chairman, Department of Neurological Sciences
Co-Director, Rush Alzheimer's Disease Center
Co-Director, Rush Neuroscience Institute*

John W. and Helen H. Watzek **Chair of Biochemistry**

Established in 1965 by John W. Watzek, Jr., an industrialist, to honor the memory of his parents. The decision grew out of a relationship with the Medical Center and with his physician, the late Richard B. Capps, M.D.

Holder: Klaus E. Kuettner, Ph.D.

*The John W. and Helen H. Watzek Professor of Biochemistry
Professor of Orthopedic Surgery
Chairman, Department of Biochemistry
Co-Director, Rush Arthritis and Orthopedic Institute*

Harriet Blair Borland **Chair of Pathology**

Established in 1968 by Chauncey B. Borland, a Trustee of Rush-Presbyterian-St. Luke's Medical Center for many years, in memory of his mother who shared his interest in clinical pathology and supported the same interests during her lifetime.

Holder: Meryl H. Haber, M.D.

*The Harriet Blair Borland Professor of Pathology
Chairman, Department of Pathology*

Richard B. Capps, M.D., **Chair of Hepatology**

Established in 1968 by friends and patients in recognition of the contributions of Richard B. Capps, M.D., to medicine, particularly his pioneering research in the area of hepatitis. The Chair was completed in 1984 with a bequest of Mrs. Richard B. Capps.

Josephine Dyrenforth **Chair of Gastroenterology**

Established in 1968 by a bequest of Mrs. Josephine Dyrenforth in appreciation of the care given her husband, Arthur, a well-known Chicago attorney.

Holder: Seymour M. Sabesin, M.D.

*The Josephine Dyrenforth Professor of Gastroenterology
Director, Section of Digestive Diseases*

Woman's Board **Chair of Pediatrics**

Established in 1968 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center as the first endowed chair of pediatrics at any hospital in the nation and the first major endowment by the Woman's Board.

Holder: Samuel P. Gotoff, M.D.

*The Woman's Board Professor of Pediatrics
Chairman, Department of Pediatrics*

Willard L. Wood, M.D., **Chair of Rheumatology**

Established in 1969 through a bequest of the late Charles S. Pillsbury, his family, and other grateful patients of Willard L. Wood, M.D. Dr. Wood was a graduate of Rush Medical College and, as a physician and faculty member gave over 55 years of service to the Medical Center.

Holder: Thomas J. Schnitzer, M.D., Ph.D.

*The Willard L. Wood, M.D. Professor of Rheumatology
Director, Sections of Rheumatology and Geriatrics
Co-Director, Rush Arthritis and Orthopedic Institute
Co-Director, Rush Institute on Aging*

Elodia Kehm **Chair of Hematology**

Established in 1969 by a bequest honoring Elodia Kehm, the widow of the owner of Kehm Construction, who died of cancer in 1932.

Holder: William H. Knospe, M.D.

*The Elodia Kehm Professor of Hematology
Director, Section of Hematology*

The Mary and John Bent

Chair of Cardiovascular-Thoracic Surgery

Established in 1970 through the leadership of Rush Trustee John P. Bent. The Chair was renamed on February 12, 1992 to honor the Bents, who have provided the major philanthropy for this professorship.

Holder: Hassan Najafi, M.D.

The Mary and John Bent Professor of

Cardiovascular-Thoracic Surgery

Chairman, Department of Cardiovascular-Thoracic Surgery

Co-Director, Rush Heart Institute

Harry Boysen, M.D.,

Chair of Obstetrics and Gynecology

Established in 1970 by gifts from the Woman's Board, the Trustees, and grateful patients of Harry Boysen, M.D., who dedicated 46 years of his career to Rush-Presbyterian-St. Luke's Medical Center.

Holder: Lourens J.D. Zaneveld, D.V.M., Ph.D.

The Harry Boysen, M.D., Professor of Obstetrics

and Gynecology

Director, Section of Obstetrics and Gynecology Research

John M. Simpson

Chair of Obstetrics and Gynecology

Established in 1970, this chair recognizes the philanthropy of John M. Simpson, a Trustee of the Medical Center for 38 years.

Holder: George D. Wilbanks, Jr., M.D.

The John M. Simpson Chair of Obstetrics and Gynecology

Chairman, Department of Obstetrics and Gynecology

Bishop Anderson

Chair of Religion and Medicine

Established in 1970 through the philanthropy of Mrs. Laurance Armour, Sr., and the leadership of Bishop Charles P. Anderson, Bishop of the Episcopal Diocese of Chicago from 1900-1930, as an important recognition of the heritage and commitment of Rush-Presbyterian-St. Luke's Medical Center.

Holder: Laurel A. Burton, Th.D.

The Bishop Anderson Professor of Religion and Medicine

Chairman, Department of Religion, Health

and Human Values

Ralph C. Brown, M.D.,

Chair of Internal Medicine

Established in 1970 in memory his father by R. Gordon Brown, M.D., a graduate of Rush Medical College. Dr. Ralph C. Brown served as professor of medicine and a medical staff member of Presbyterian-St. Luke's Hospital until his death in 1954.

Holder: Roger C. Bone, M.D.,

The Ralph C. Brown, M.D., Professor of Internal Medicine

The Henry P. Russe, M.D., Dean of Rush Medical College

Vice President for Medical Affairs

Thomas J. Coogan, Sr., M.D.,

Chair of Immunology

Established in 1971 in tribute to the late Thomas J. Coogan, Sr., M.D., and in memory of Benjamin F. Lindheimer by Mr. Lindheimer's daughter, Marjorie Lindheimer Everett, who recognized Dr. Coogan's outstanding service to the medical profession and encouraged great progress in the discipline of immunology at Rush.

Holder: Henry Gewurz, M.D.

The Thomas J. Coogan, Sr., M.D., Professor of Immunology

Chairman, Department of Immunology/Microbiology

James Lowenstine

Chair of Internal Medicine

Created in 1971 by the Lowenstine Foundation to honor the President of Central Steel and Wire Company and to inspire and promote the philosophy of patient-centered care and, in particular, the clinical training of the family doctor.

Holder: Stuart Levin, M.D.

The James Lowenstine Professor of Internal Medicine

Acting Chairman, Department of Internal Medicine

Director, Section of Infectious Disease

Stanley G. Harris, Sr.,

Chair of Psychiatry

Established in 1972 as a lasting memorial to the late Stanley G. Harris, Sr., who provided Rush-Presbyterian-St. Luke's with leadership and philanthropy for many years.

Holder: Jan A. Fawcett, M.D.

The Stanley G. Harris, Sr., Professor of Psychiatry

Chairman, Department of Psychiatry

The Grainger Director, Rush Institute for Mental Well-Being

J. Bailey Carter, M.D.,

Chair of Cardiology

Established in 1972 by his widow, Ruth, this chair honors J. Bailey Carter, M.D., a well-known professor of cardiology on the Rush Medical College faculty from 1928 to 1938.

Stanton A. Friedberg, M.D.,

Chair of Otolaryngology and Bronchoesophagology

Established in 1973 by the family, patients and friends of Stanton A. Friedberg, M.D., a preeminent physician and teacher at Rush Medical College and president of the medical staff from 1964 to 1966.

Holder: David D. Caldarelli, M.D.

The Stanton A. Friedberg, M.D., Professor of Otolaryngology

and Bronchoesophagology

Chairman, Department of Otolaryngology

and Bronchoesophagology

**Max Sadove, M.D.,
Chair of Anesthesiology**

Established in 1973 primarily by gifts from members of the Department of Anesthesiology and named in 1985 to honor Max S. Sadove, M.D., chairman of the Department of Anesthesiology from 1971 to 1979, whose leadership brought the department to international stature.

**Jack Fraser Smith
Chair of Surgery**

Established in 1974 by Bertha Spaeti Smith in memory of her husband to recognize and honor outstanding physicians and surgeons in the Department of General Surgery.

Holder: James W. Williams, M.D.

*The Jack Fraser Smith Professor of Surgery
Director, Section of Transplantation*

**Otho S. A. Sprague
Chair of Pathology**

Established in 1975 to recognize the Otho S. A. Sprague Memorial Institute which was created through the will of Otho S. A. Sprague, civic leader in Chicago at the turn of the century, and which since 1938 has supported research at Rush, especially in the Departments of Biochemistry, Immunology/Microbiology and Pathology.

Holder: Victor E. Gould, M.D.

The Otho S. A. Sprague Professor of Pathology

**Francis N. and Catherine O. Bard
Chair of Physiology**

Established in 1975 by bequest of Francis N. Bard, who took an active interest in the Medical Center, an interest which his family continues.

Holder: Robert S. Eisenberg, Ph.D.

*The Francis N. and Catherine O. Bard Professor of Physiology
Chairman, Department of Physiology*

**Samuel G. Taylor III, M.D.,
Chair of Oncology**

Established in 1976 by friends, patients and colleagues, this Chair honors a distinguished leader in medicine, a 1932 Rush Medical College graduate, a founder of the Illinois Cancer Council and an active participant in the National Institutes of Health and the American Cancer Society.

Holder: Jules E. Harris, M.D.

*The Samuel G. Taylor III, M.D., Professor of Oncology
Director, Section of Medical Oncology*

**William A. Hark, M.D. - Susanne G. Swift
Chair of Orthopedic Surgery**

Established in 1977, the Hark-Swift Chair brings together the names of a physician and patient as an abiding reminder of that special relationship. It was funded by family and friends of the late William A. Hark, M.D., the estate of Susanne G. Swift--a former patient of Dr. Hark--and members of the medical staff, Department of Orthopedic Surgery.

Holder: Jorge O. Galante, M.D., D.M.Sc.

*The Hark-Swift Professor of Orthopedic Surgery
Chairman, Department of Orthopedic Surgery
Director, Rush Arthritis and Orthopedic Institute*

**Robert C. Borwell
Chair of Neurology**

Established in 1978 by Robert C. Borwell, Trustee of Rush-Presbyterian-St. Luke's Medical Center, to set an example for others to follow for the endowment needs of the new Rush University and to support the research and treatment of multiple sclerosis and related diseases.

Holder: Floyd A. Davis, M.D.

*The Robert C. Borwell Professor of Neurology
Director, Multiple Sclerosis Center*

**John L. and Helen Kellogg
Dean of the College of Nursing**

Established in 1978 by the John L. and Helen Kellogg Foundation in the College of Nursing as part of a munificent \$4.5 million gift which also named the Kellogg Pavilion and created the John L. and Helen Kellogg National Center for Excellence in Nursing at the Medical Center as a memorial to Mr. and Mrs. Kellogg.

Holder: Kathleen Gainor Andreoli, D.S.N.

*The John L. and Helen Kellogg Dean of the College
of Nursing
Vice President, Nursing Affairs*

**Helen Shedd Keith
Chair of General Surgery**

Established in 1980 in tribute to Helen Shedd Keith, first a member of St. Luke's Hospital Woman's Board and later of the combined boards of both Presbyterian and St. Luke's Hospitals, a founder of the Anchor Cross Society, and generous donor to Rush-Presbyterian-St. Luke's Medical Center. The chair was endowed by her daughter and son-in-law, Mary and John Bent. Bent is a Life Trustee of the Medical Center.

Holder: Steven G. Economou, M.D.

*The Helen Shedd Keith Professor of General Surgery
Chairman, Department of General Surgery*

**Clark Wylie Finnerud, M.D.,
Chair of Dermatology**

Established in 1981 by Mrs. Clark W. Finnerud in honor of her late husband, a distinguished alumnus and professor of Rush Medical College and towering figure in the field of American dermatology.

Holder: Frederick D. Malkinson, M.D., D.M.D.

*The Clark Wylie Finnerud, M.D., Professor of Dermatology
Chairman, Department of Dermatology*

**James A. Campbell, M.D.
Distinguished Service Chair**

Established in 1981 by a group of former chairmen of the Trustees and special friends of the Medical Center to permanently recognize the vision, imagination, and personal dedication of James A. Campbell, M.D., president of the Medical Center from 1964 to 1983.

**The Muehrcke Family
Chair of Nephrology**

Established in 1981 by Robert C. Muehrcke, M.D., and his family. Dr. Muehrcke is Associate Professor, Rush Medical College, and Director of the Kidney Center and of Medical Education at West Suburban Hospital, Oak Park, Illinois

**William Gottschalk, M.D.
Chair of Anesthesiology**

Established in 1984 by family, friends, patients and colleagues to honor the late William Gottschalk, M.D., internationally recognized authority in anesthesiology and gynecology, and associate chairman of the Department of Anesthesiology from 1975 to 1984.

Holder: Anthony D. Ivankovich, M.D.,

*The William Gottschalk, M.D., Professor of Anesthesiology
Chairman, Department of Anesthesiology*

**Women's Board
Chair of Child Psychiatry**

Established in 1985 by the Women's Board of Rush-Presbyterian-St. Luke's Medical Center to serve the needs of children of the community.

Holder: Elva O. Pozanski, M.D.

*The Women's Board Professor of Child Psychiatry
Director, Section of Child Psychiatry*

**Coleman/Fannie May Candies Foundation
Chair for the Director of the Thomas Hazen
Thorne Bone Marrow Transplant Center**

Established in 1985 by the Coleman/Fannie May foundation, Inc., to strengthen resources in the Midwest for cancer treatment and research, honoring the memory of a former director of the Foundation who died of leukemia.

Holder: Herbert Kaizer, M.D., Ph.D.

*The Coleman/Fannie May Candies Foundation Professor
Director, Thomas Hazen Thorne Bone Marrow
Transplant Center*

**The CIBA-GEIGY
Chair of Biochemistry**

Established in 1987 by CIBA-GEIGY, the American arm of the multinational chemical and pharmaceutical firm headquartered in Switzerland, with hopes of conquering arthritis, one of mankind's most widespread afflictions, and as an example of the productive relationships between industry and academic medicine.

**Claude N. Lambert, M.D.-Helen S. Thomson
Chair of Orthopedic Surgery**

Established in 1978 and endowed through the generous bequest of Helen S. Thomson, a patient, long-time friend and neighbor of the late Claude N. Lambert, M.D., who served Rush-Presbyterian-St. Luke's Medical Center for 40 years. Dr. Lambert helped establish the Department of Orthopedic Surgery as an internationally recognized program.

Holder: Thomas P. Andriacchi, Ph.D.

*The Claude N. Lambert, M.D. - Helen S. Thompson Professor
of Orthopedic Surgery
Director, Section of Orthopedic Research*

**Charles J. and Margaret Roberts
Chair of Preventive Medicine**

This chair was established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts, patients and long-time friends of George W. Stuppy, M.D., a member of the medical staff for almost 50 years. Their generosity endowed the Charles J. and Margaret Roberts Fund for Preventive Medicine which supports the Chair and other programs at the Medical Center.

Holder: Henry R. Black, M.D.

*The Charles J. and Margaret Roberts Professor
of Preventive Medicine
Chairman, Department of Preventive Medicine*

George W. Stuppy, M.D.
Chair of Arthritis

This chair was established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts. It honors their special relationship with Dr. Stuppy and recognizes his distinguished career of nearly 50 years as a physician, scientist and teacher at the Medical Center.

Holder: Eugene J-M. A. Thonar, Ph.D.

The George W. Stuppy, M.D. Professor of Arthritis

Professor, Internal Medicine

James B. Herrick, M.D.
Chair of Heart Research

Established in 1987 through a bequest from Mr. and Mrs. Charles J. Roberts, this Chair recognizes the significant contributions of Dr. James B. Herrick to cardiology and internal medicine. Dr. Herrick, a graduate of Rush Medical College, also served on the faculty for many years.

Holder: Joseph E. Parillo, M.D.

The James B. Herrick Professor of Heart Research

Co-Director, Rush Heart Institute

Alla V. and Solomon Jesmer
Chair of Gerontology and Geriatric Medicine

This chair was established in 1988 through a bequest of Solomon Jesmer, as a tribute to his late wife and to the care both received at the Johnston R. Bowman Health Center for the Elderly. Jesmer hoped to advance research and education in the fields of gerontology and geriatric medicine.

Holder: Denis A. Evans, M.D.

The Alla V. and Solomon Jesmer Professor of Gerontology and Geriatric Medicine

Director, Center for Research on Health and Aging

Co-Director, Rush Alzheimer's Disease Center

Co-Director, Rush Institute on Aging

Catharine and R. Winfield Ellis - Philip N. Jones, M.D.
Chair of University Affairs

Through this chair, established in 1988, the Ellis family honored Philip N. Jones, M.D., senior attending physician in internal medicine, and provided financial assistance for students of Rush University, especially those enrolled in the colleges of medicine and nursing.

Holder: John E. Trufant, Ed.D.

The Catharine and R. Winfield Ellis - Philip N. Jones, M.D., Professor of University Affairs

Dean, College of Health Sciences

Dean, The Graduate College

Vice President, Academic Support Services

John W. Curtin, M.D.
Chair in Plastic and Reconstructive Surgery
Established in 1989 through the efforts of Mr. and Mrs. William A. Thomas, Sr., and other patients, friends and colleagues, to honor the long-time chairman of the Plastic and Reconstructive Surgery Department, Dr. John W. Curtin.

Colonel Robert R. McCormick
Chair of Diagnostic Imaging

Established in 1989 through a gift from the Robert R. McCormick Charitable Trust, this Chair reflects the Trust's commitment to scientific investigation and diagnostic imaging.

Holder: David A. Turner, M.D.

The Colonel Robert R. McCormick Professor

of Diagnostic Imaging

Director, The Robert R. McCormick

Magnetic Resonance Facility

Dr. Glenn G. and Blanche S. Ehrler
Chair of Obstetrics and Gynecology

This chair was established in 1989 through a bequest of Dr. and Mrs. Glenn G. Ehler. Dr. Ehler, a surgeon, was a 1931 graduate of Rush Medical College and did his internship at Presbyterian Hospital.

Independence Foundation
Chair in Nursing Education

This chair was established in 1989 by the Independence Foundation of Pennsylvania to advance nursing education and promote the pivotal role of nursing today and in the twenty-first century.

Cynthia Oudejans Harris, M.D.
Chair of Psychiatry

This chair, established in 1989, honors the daughter of a former Trustee, Stanley G. Harris, Sr., and the sister of Life Trustee Stanley G. Harris, Jr., who dedicated her life to the practice of psychiatric medicine.

Holder: Michael Basch, M.D.

The Cynthia Oudejans Harris, M.D. Professor of Psychiatry

Stanley G. Harris Family
Chair of Psychiatry

Established in 1989, this chair pays tribute to the Harris family's faithful stewardship of the Medical Center through the years.

Joseph and Florence Manaster Foundation
Chair of Multiple Sclerosis

A gift from the Joseph and Florence Manaster Foundation established this chair in 1989. It reflects the concern of Joseph Manaster, whose first wife, Florence, suffered from multiple sclerosis (M.S.), that M.S. patients be provided with compassionate care in.

**Frances T. and Lester B. Knight
Chair of Gynecologic Oncology**

Established in 1990 through the philanthropy of the Lester B. Knight Foundation, at the direction of Mrs. Frances T. Knight, for the purpose of furthering the diagnosis and treatment of ovarian cancer through education and research. This chair pays tribute to the memory of the late Mr. Knight and recognizes Mrs. Knight for her foresight and commitment to Rush.

**The United Parkinson Foundation of Chicago
Chair of Neurological Sciences**

Established in 1991 by the United Parkinson Foundation of Chicago to promote the innovative and effective research necessary to further progress in Parkinson's Disease

Holder: Harold L. Klawans, M.D.

*The United Parkinson Foundation Professor
in Neurological Sciences*

**The Grainger Directorship of
The Rush Institute for Mental Well-Being**

Established in 1990 through the magnificent generosity of David and Juli Grainger. This directorship honors the vision and values exemplified in the new initiative represented by the Rush Institutes. It also represents the Graingers' singular dedication to advancing research and treatment in psychiatry

Holder: Jan Fawcett, M.D.

The Grainger Director Rush Institute for Mental Well-Being

The Stanley G. Harris Sr., Professor of Psychiatry

Chairman, Department of Psychiatry

**The Morton International Chair of
Orthopedic Surgery**

Since the 1940's, when the Chairman of Morton Salt, Sterling Morton, joined the Board of Trustees of St. Luke's Hospital, the company's top leadership has sustained the commitment to Rush. In 1992, the Morton International Chair of Orthopedic Surgery was established to benefit the countless individuals who suffer from low back pain.

**The Ralph and Marion C. Falk Chair of
Biochemistry**

Established in 1992 through the extraordinary philanthropy of the Dr. Ralph and Marion C. Falk Medical Research Trust for the purpose of furthering the study of osteoarthritis and cartilage physiology within The Rush Arthritis and Orthopedic Institute. This chair pays tribute to the Late Dr. and Mrs Falk and their great commitment to the advancement of patient care through scientific investigation and the exploration of medical science.

**The Henry P. Russe, M.D. Dean of
Rush Medical College**

Established in 1992 through the generous philanthropy of Dr. Russe's family, friends, students and colleagues for the purpose of providing funds to be used at the discretion of the Dean of Rush Medical College. These much needed funds will be used to sustain the research of young investigators who are working to establish their careers. This chair pays tribute to the late Dr. Henry P. Russe for his tireless commitment to the practice of medicine, medical education and administration.

**The Crown Family Chair of
Orthopedic Surgery**

The 54th endowed chair was established in 1992 as a result of the generosity of the Crown family. The family has a special interest in the area of orthopedics and their gift established the chair for the study of joint replacement in The Rush Arthritis and Orthopedic Institute.

Rush University Honorary Degree Recipients

- 1973** Robert J. Glaser, M.D.
President, Henry J. Kaiser Foundation
- William George Anlyan, M.D.
Vice President, Health Affairs
- Mark Hummer Lepper, M.D.
Chairman, Comprehensive Health Planning Board
State of Illinois
- 1974** Robert Higgins Ebert, M.D.
Caroline Shields Walker Professor of Medicine
Dean of the Faculty of Medicine, Harvard Medical
School
- 1975** John H. Knowles, M.D.
President, Rockefeller Foundation
- Virginia Henderson, M.A.
Senior Research Associate Emeritus, School of
Nursing, Yale University
- 1976** James Harvey Young, Ph.D.
Professor of History, Emory University
- Jessie M. Scott, R.N., M.A.
Assistant Surgeon General and Director, Division of
Nursing, Health Resources Administration
United States Department of Health, Education and
Welfare
- 1977** David A. Hamburg, M.D.
President, Institute of Medicine of the National
Academy of Sciences
- 1978** Julius B. Richmond, M.D.
Assistant Secretary for Health, Education and
Welfare
- 1979** Gerard Piel, B.A.
Publisher and President, Scientific American
- 1980** Harriet Waltzer Sheridan, Ph.D.
Dean of the College, Brown University
- 1981** Thomas Harrison Hunter, M.D.
The Owen R. Cheatham Professor of Science
University of Virginia School of Medicine
- 1982** Walter J. McNerney, M.H.A.
Immediate Past President of the Blue Cross and
Blue Shield Association
Professor of Health Policy, Northwestern University
- 1983** Baruch S. Blumberg, M.D., Ph.D.
Nobel Laureate
Associate Director, Clinical Research, Institute for
Cancer Research, Fox Chase Cancer Center,
Philadelphia, Pennsylvania
- 1984** Julius R. Krevans, M.D.
Chancellor, University of California at San Francisco
- 1985** Special Convocation
Eli Ginzberg, Ph.D.
The A. Barton Hepburn Professor Emeritus in
Economics, Columbia University
- David E. Rogers, M.D.
President, the Robert Wood Johnson Foundation
- Virginia V. Weldon, M.D.
Vice President, Washington University Medical
Center
- 1985** Edward N. Brandt, Jr., M.D., Ph.D.
Chancellor, University of Maryland, Baltimore
- 1986** Edward J. Stemmler, M.D.
Dean, University of Pennsylvania School of Medicine
- 1987** The 150th Anniversary Commencement
The Honorable Dan Rostenkowski
Chairman, House Ways and Means Committee
- Raymond C. Baumhart, S.J.
President, Loyola University of Chicago
- Arnold R. Weber, Ph.D.
President, Northwestern University
- Hanna Holbern Gray, Ph.D.
President, The University of Chicago
- Stanley O. Ikenberry, Ph.D.
President, The University of Illinois
- 1988** Samuel O. Thier, M.D.
President, The Institute of Medicine of the National
Academy of Sciences
- 1989** Leon M. Lederman, Ph.D.
Director, Fermi National Accelerator Laboratory
- 1990** Louis W. Sullivan, M.D.
United States Secretary of Health and Human
Services
- 1992** Stuart Harold Altman, Ph.D.
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